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Original Articles.

THE MINOR MEDICAL SERVICES

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MOST of our readers are probably aware that, ever since the scattered individual medical officers serving in India were, from 1st January 1764, united into one body, the Indian Medical Service, that Service has been divided into three branches, the Bengal, Madras, and Bombay "Establishments," as they used to be called. And, though the Court of Directors of the East India Company always insisted that officers appointed to one Establishment might be posted to either of the others, or wherever they were required, (1) such transfers have, for nearly a century past, rarely been made. The names of the officers in these three Services were combined in one list, for the first time, in the *Indian Army List* of 1st October 1906. But they still remain on separate lists for promotion. To these three Services, thirteen years ago, was added a fourth, the junior Service, in which all the members are on one list for promotion. This Service was created by G G O No 260 of 6th March 1896, with effect from 1st April 1896. There are now, therefore, four different branches of the I M S, and presumably these four branches will continue to exist for 20 to 25 years more, until the last members of the senior Services have died or retired, after which only one Imperial Medical Service will remain. But by that time there will probably be a large Provincial Medical Service entirely recruited in India.

The East India Company, however, besides the large Indian Medical Service, used to maintain several smaller Medical Services, viz —

The St Helena Medical Service

The West Coast (of Sumatra) Medical Service.

The Prince of Wales Island Medical Service

The China Medical Service

There was also, of course, the very numerous Marine Medical Service, comprising the Medical officers of the Company's Indiamen. These officers were not united into a service, but each appointed to a particular ship for one voyage. Service at sea was frequently, though by no means always, a passport to entry into one of the land Services. The majority of the ship Surgeons never entered the land service, most of the men in the regular Services, had not previously served at sea.

I — THE ST HELENA MEDICAL SERVICE

The island of St Helena was first discovered by a Portuguese Navigator, Juan de Nova Castilla, on 31st May 1501 (St Helena's day). In 1588 it was visited, on his return from a voyage round

the world, by Captain Thomas Candish or Cavendish, who found the island inhabited by only a few slaves of the Portuguese, and speaks of seeing a cross, with the date 1571, and a church, and mentions that the Portuguese Indiamen usually touched at the island on their homeward voyages (2). The island was formally occupied by the Dutch in 1633, but abandoned by them in 1651, when they took possession of the Cape of Good Hope. When the Dutch left St Helena, the East India Company occupied the island, and their possession was confirmed by a charter from King Charles II, dated 3rd April 1661. In 1673 the Dutch captured the island, but it was retaken in the same year by Captain (afterwards Sir) William Munden, R N, and re-granted to the Company by a new charter, dated 16th December 1673 (3). The East India Company retained possession of the island until 1834, except during the years 1815 to 1821, when the British Government held it as a residence for Napoleon, who died there on 5th May 1821. When acts 3 and 4 of William IV, cap 85, in 1833, abolished their trade, the Company ceded the island to the Crown.

As might be expected, from the size of the place, the St Helena Medical Service was a very small one. At most, there appear to have been four or five men serving at one time, of whom one would usually be on furlough. In 1813 there were, a Medical Superintendent, a Head Surgeon, one Surgeon, and two Assistant-Surgeons. In all, I have only been able to collect some thirty names of officers in this Service, two in 1749, the others during the years 1771 to 1834, when the Service was finally closed. The last officer on the list, George Brown Waddell, who entered in 1828, was murdered by pirates on 6th April 1830. The last survivor of this small Service was James Arnott, M A, 1812, M D, 1825, of Marischal College, Aberdeen, who entered in 1825, and died in London on 4th March 1883.

II — THE MALAY ISLANDS AND WEST COAST SERVICE

The East India Company's first factories in the East were in the Malay islands, not in India itself. Captain James Lancaster, who commanded the Company's first voyage, founded a factory at Bantam, in Java, in 1603, and Captain Hippon, in the seventh voyage, founded a factory in Siam in 1610-11. The English were expelled from Bantam by the Dutch in 1621, and on 16th February 1823 occurred the massacre at Amboyna, when the English Agent, Captain Gabriel Towerson, and almost all of his staff, were seized, tortured, and executed by the Dutch on account of an alleged plot (4). Owing to the enmity of the Dutch, the Company's factories in the Malay islands, Siam, Japan, etc., were abandoned in 1624, only a few, Achin, Jambi, Japara, and Macassar, being retained. The factory at Bantam was re-established as subordinate to Suat in 1629, but in 1634-35

was made an independent Presidency Madras was a subordinate factory to Bantam from its foundation in 1640 up to 1653, when it also was made an independent Presidency Balam-bangan, in the Sulu Islands, was occupied by the English from 1671 to 1675, when the factory was moved to Labuan Factories were also established and occupied by the Company from time to time at—

Macassar, South-west corner of Celebes

Manilla, West coast of Luzon, Philippine islands

Tywan, or Tai-wan, the island of Formosa

Jambi, North east coast of Sumatra, near South-east end

Patani, East coast of Malay Peninsula

Pulo Condore, island off South coast of Cambodia

Jakarta, West end of North coast of Java, (now Batavia)

Japara, North coast of Java

Sukadana, South-west coast of Borneo

Ternate, Molucca islands, North-east coast

Tidore Molucca islands, North-east coast

Banjarmassin, South-east coast of Borneo

In 1677 the Javanese, instigated by the Dutch, attacked the factory at Bantam and murdered the Agent Bantam was taken by the Dutch in 1682, and the English had to withdraw from all its subordinate factories, including Tonquin, (founded 1678), and Amoy, (founded 1679)

As a rule, these factories had each a Medical officer of some sort, or were supposed to have one They must often have been left without any Surgeon, for, when a man died, the interval before a successor could be sent from England or obtained from one of the Company's Indian-men, must have been long The Company's officers at Masulipatam, on 6th November 1630, wrote to the President and Council at Surat that surgeons were required at Bantam and Jambi(5) This report in time reached headquarters, and was acted on, for in the Court minutes of 20th November 1633 we find an order to John Woodall, the Company's Surgeon-General, to send experienced Surgeons to Bantam and Jambi, and also two chests of surgery(6) The origin, or at least the pretext, for the Amboyna massacre, was a drunken freak of the factory Surgeon, Abel Price, who, when intoxicated, attempted to set fire to a Dutchman's house He was seized and imprisoned by the Dutch, and under torture confessed to a plot, probably imaginary, on the part of the English, to attack and murder the Dutch Among the victims of the massacre was also a second Surgeon, Timothy Johnson(7)

After they had abandoned their factories in Java and further east, the Company made a settlement at Bencoolen, on the South-west coast of Sumatra, where they built Fort York in 1685-87, and Fort Marlborough in 1715 The Madras Press Lists of 14th October 1737

mention the building of a new hospital at Fort Marlborough Numerous other settlements were gradually founded in Sumatra, subordinate to Fort Marlborough or Bencoolen, viz, Priaman, Padang, Moco-Moco, Natal, and Crooe All these places lay along the South-west coast of the island, so the men serving there were called the West-coast Service

Throughout the greater part of the eighteenth century, Sumatra appears to have been officered from Madras, and to have been subordinate to that Presidency Service on the West coast was not popular, and men who were not wanted in Madras seem to have been relegated there But after the foundation of the Calcutta Medical Board in 1786 correspondence from Medical officers in Sumatra passed to Government through that Board

After the I M S had been constituted in 1764, up to the end of the eighteenth century, the Medical Officers serving on the West-coast formed a small separate service of their own, which gradually died out in the first years of the nineteenth century The West-coast Service was still maintained, but was officered entirely from India, chiefly from Bengal, with a few men from Madras These men served temporarily on the West coast, retaining their places in their own service, and reverting to it after a tour of duty in Sumatra After 1792, no new names, other than those of officers of the I M S appear among them

This Service came to an end in 1825, the British possessions in Sumatra being handed over to the Dutch, in exchange for the territory of Malacca, in the Malay Peninsula, by the Treaty of 17th March 1824 The Medical Officers serving in Sumatra then rejoined their own Presidencies

III—THE PRINCE OF WALES ISLAND MEDICAL SERVICE

THE island of Penang was ceded to the East India Company in 1796 by the Raja of Kedah or Quedah and was given the name of Prince of Wales Island The same potentate in 1798 ceded a tract of country on the mainland opposite Penang, to which was given the name of Province Wellesley Malacca was first occupied by the Portuguese in 1511, taken from them by the Dutch in 1640, and taken from the Dutch by the British in 1795 The British retained it up till 1818, when it was given back to Holland As stated above, the Treaty of 17th March 1824 gave Sumatra to the Dutch in exchange for Malacca, the Dutch also recognizing British sovereignty over Singapore, which they had previously disputed Singapore was occupied by the British in 1819, and formally ceded to them by the Raja of Johore in 1824

In 1801 it was proposed to form a fourth Presidency, besides those of Bengal, Madras, and Bombay, to include the Company's possessions

in Further India and the islands, with the seat of Government at Penang Dundas was to have been Governor. The post of President of the Medical Board was offered to Dr. McGregor, then serving as a Medical Officer of British troops in India (8). He had just accompanied the expedition to Egypt in 1801, as Principal Medical Officer, the Company giving him a Commission as Superintending Surgeon in their Service, in addition to his Commission in the King's Service, in order to invest him with authority over the Indian troops serving in Egypt. This officer was the celebrated Sir James McGregor, Bart, who held the post of Director-General of the Army Medical Department from 1815 to 1851. After consideration he declined the offer, partly on account of the protest against their supersession which would have been made by the Company's Medical Officers. The scheme was never carried out.

The Medical Officers in these settlements were supplied partly by a small separate Service, partly by men lent temporarily from Bengal. The numbers were few, only some fourteen or fifteen in all, besides the men lent. G. O. No. 90 of 5th May 1826, published in the *Calcutta Gazette* of 8th May 1826, increases the strength of the Bengal Medical Service by 5 men, 20 Surgeons and 30 Assistant-Surgeons. The 5th paragraph of this order runs as follows —

"Singapore, one of the stations enumerated by the Medical Board as requiring an Asst Surgeon, will be supplied with Medical Servants from the Establishment of the Incorporated Settlements of Prince of Wales Island, Singapore, and Malacca, as soon as the complement of Medical Servants for these Settlements shall have been furnished."

In 1830 there were only four men left in the Service, one of whom, John James Boswell, was transferred to Bengal in that year. The other three were transferred in 1831, by the following General Order in the *Calcutta Gazette* of 3rd October 1831:

"The undermentioned Assistant Surgeons of the Penang Medical Service are transferred, under instructions from the Honorable the Court of Directors, to the Bengal Establishment, with rank immediately above Assistant Surgeon J. J. Boswell:

Asst Surgeon John Campbell Boswell
" " Adam Thompson,
" " Thomas Oxley "

The last survivor, Thomas Oxley, retired on 20th January 1857, and died at Southampton on 6th March 1886, having long survived the other three, both in length of service and in length of years.

One officer of this Service attained some note, Charles Mackinnon. He was appointed to the China Service in 1836, but probably never joined, being transferred to Prince of Wales Island the same year. He retired on 14th November 1821, was elected M. P. for Ipswich in 1826, 1830 and 1831, and died at Beauvais in France on 19th November 1834.

These settlements were supplied with Medical Officers from Bengal for the next thirty-seven years, until in April 1867 they were removed from the control of the Indian Government and incorporated into a Crown Colony, under the name of Straits Settlements.

IV — THE CHINA MEDICAL SERVICE

The China Service was the smallest of all, and consisted of never more than two men at one time, serving in the Company's factories at Canton and Macao. The East India Company never owned any territory in China, Hongkong was taken possession of by the British in January 1841, and formally ceded by the Treaty of Nankin in 1842.

The Statute of 55 George III, *Cap* 155, in 1813, abolished the Company's monopoly of trade with India, but left them with that of the China trade. Acts III and IV of William IV, *Cap* 85, in 1833, abolished their trade altogether. Their factories in China were closed, and the China Medical Service came to an end.

I have only got ten names in all, for this Service, from 1756 to 1834, and two of these ten probably never joined. One of the other eight was a man of some mark, Thomas Richardson Colledge. Born in 1796, he joined the Canton Factory in 1831, being the last man appointed to the service. When the Company withdrew from China, he continued to serve at Canton under the Crown, but returned to England in 1841, when his appointment of Surgeon to the Canton Consulate was abolished. He settled at Cheltenham, where he lived for 38 years, and died there on the 28th October 1879. In 1839 he took the degree of M.D. of King's College, Aberdeen, became F.R.C.P., Edinburgh, in 1840, F.R.S., Edinburgh in 1844, and F.R.C.S., England, in 1853. While still serving in China, in 1837, he founded the Medical Missionary Society of China.

Ceylon was first occupied by the Portuguese in 1507. They were dispossessed by the Dutch about a century and a half later. When England was at war with France, and consequently with Holland also, at the end of the eighteenth century, the E. I. Company sent an expedition to Ceylon, and seized the Dutch settlements there, in 1796, and annexed them to the Madras Presidency. Five years later, in 1801, they handed over Ceylon to the British Government, and it became a Crown Colony. Up to that date, however, Portuguese, Dutch, and English possessions, in Ceylon, were only a strip along the seacoast, with a few scattered settlements. The Company never constituted any separate service for Ceylon, which, while they held it, was considered part of the Madras Presidency, and officered from Madras.

Madras Military Consultations of 25th September 1798 (Volume CCXLII) record the appointment of Mr. J. Ewart, of the King's Army, as Physician to the Forces, and Inspector-

General of Hospitals in Ceylon The Company's Medical Officers in Ceylon served under this Officer up to 1801

One Medical Officer, however, whose name does not appear in the Madras list, appears to have been appointed to Ceylon by the Company Thomas Christie was born in 1773, educated at Aberdeen University, and entered the Company's service in 1797, being posted to Trincomalee. In 1800 he was appointed Superintendent of military hospitals in Ceylon His services appear to have been taken over by the British Government, for he remained in Ceylon until 1810, serving in the war against the King of Kandy in 1803 In 1810 he went home, and in the following year he settled in practice at Cheltenham, where he died on 11th October 1829 He was appointed Physician extraordinary to the Prince Regent in 1813

V—THE MARINE MEDICAL SERVICE

The Marine Medical Service of the East India Company might form material, not only for a separate article, but for a complete book From the earliest times the Company provided for the medical requirements of their ships' crews On the first voyages in 1601, four ships set out under the command of James Lancaster, the *Scourge*, or (*Red Dragon*), the *Hector*, *Assention* and *Susan*, with a small tender, the *Gwift* Each of the four ships carried "Surgeons twoe and a Barber" In the first volume of Sainsbury's *Calendar of State Papers*, already quoted, No 279, of 8th to 31st December 1600, orders are quoted to pay to "Ralph Salter, Surgeon of the *Red Dragon*, £32, for furnishing his chest with all kinds of necessaries and remedies" At the same time, and for the same purpose, James Loveinge, Surgeon of the *Hector*, received £25, and Christopher Newchurch, Surgeon of the *Assention*, and John Gamond, surgeon of the *Susan*, £20 each Throughout the existence of the Company, their ships always carried Medical Officers, the large Indiamen, which made the voyage to India in the early part of the nineteenth century, carried three, a Surgeon and two mates Even so early as 1633 we find an Indiaman, the *Great James*, carrying three Surgeons

In the sixteenth and seventeenth centuries the standing and position of the medical profession, apart from a few leading men in London, was by no means high, and the Company's Marine Service, naturally, did not attract the best men Sainsbury's *Calendar*, which covers the period up to 1634, contains many references to the Surgeons of the Company's ships, a few extracts from which will show that they got both good men and bad

Court Minutes of E I Co, 25th February 1622 (*Vol III*, p 17, No 38)—"Edward Charley, Surgeon of the *Blessing*, displaced Richard Parkes, who has been Surgeon on five voyages, to take Charley's place"

Ditto, 27th February 1622—"Parkes, the Surgeon, examined in the presence of Dr Winston (9) and Mr

Fenton, and others, found grossly ignorant and incompetent and discharged The orders for displacing Charley countermanded In future all Surgeons to be examined before engaged Dr Winston offers his services for this purpose free"

Letter from President Fursland and Council, Batavia, to E I Co, 6th March 1622 (*Vol III*, p 21, No 43)—"Lewis Smith, John Ferrers, and Chambers, Surgeon of the *Supply*, sent home as drunken, vicious villains"

Letter from Richard Fursland, Batavia, to E I Co, 9th February 1623, *Vol III*, p 109, No 64)—Also Richard Wood, Pickering, and Spottis, Surgeons, honest men, long in the country, for whom at present they have no employment" (sent home, among others)

Letter from Thomas Brookedon, Batavia, to E I Co, 14th December 1623 (*Vol III*, p 202, No 368)—"The Surgeon's provisions and physical drugs would be much more beneficial if there were a sufficient man to administer them, more need of a physician than of a surgeon, and the one at present here, named Bradshaw, is such a continual drunkard that nothing can restrain him, so that, though he have reasonable skill, that beast like vice overthrows all his other good parts"

It seems curious that the President at Batavia did not send home Bradshaw, instead of one of the good men sent home the previous February

The next extract quoted orders the introduction of an examination for new Surgeons It simply repeats the order of 27th February 1622, quoted above The result of Parke's examination, on that occasion, would go to show that it was as necessary to examine the old men as the new ones

Court Minutes of E I Co, 5th February 1624 (*Vol III*, p 243, No 404)—"To the motion that the Surgeons entertained be examined, it was answered that the Surgeons of this fleet are all experienced men who have been in the Indies long, have performed extraordinary cures, and are men approved for their sufficiency in their profession, and such as will scorn to be examined, thereupon the opinion of the Court was that such surgeons as come home well approved from the Indies and proceed again shall not be subject to examination, but if a new unknown man be propounded, then to have him examined"

The next entry shows a sporting offer on the part of Surgeon George Turner, which the Company declined Turner did, however, go to India soon after, though not on the terms he proposed A letter from President Keridge and Council at Surat to the factors in Persia, dated 7th December 1626, gives George Turner's name in a list of men sent to Persia from Surat, and says that he may be employed either as factor or as Surgeon, as required (10) On page 314 of the same work Turner's name appears in a list of the Company's servants in the Indies, as "an unprofitable churrgion," drawing £40 a year

Court Minutes of E I Co, 27th January 1626 (*Vol IV*, p 143, No 248)—"George Turner, late Surgeon in the *William*, offered his services in the Indies for five years, on condition of being paid 500*l* at the end of that time if he be alive, but if he die within the time then to expect nothing, he was offered 50*l* per annum upon that contingency, but utterly refused same."

Sainsbury's *Calendar* is being gradually continued by Miss E Sainsbury. A further volume, *Calendar*, 1635—39, published in 1907, contains the following curious story—Gerard Polman, a gem merchant, after traversing many countries in search of precious stones, in the year 1631 took a passage home on board an English East Indiaman from Persia. He had with him a large collection of gems and precious stones, collected during the previous thirty years. On the homeward voyage Polman was poisoned by Abraham Porter, Surgeon of the ship, and his goods were divided among the crew. The crime becoming known, parts of his estate ultimately came into the hands of the East India Company, of the Earl of Lindsey, to whom letters of administration were granted in behalf of the true heirs, and of others. A suit was filed for recovery of the property. Nothing is recorded as to the result.

The life of a Surgeon on board an Indiaman must have been hard. Probably there was no great amount of professional work, but accommodation and food were bad, and much must have depended upon the personal qualities of the Captain. A Surgeon who did not get on well with his Commander must have had a hard time. The following letter of complaint, from John Leckie, Surgeon of an Indiaman in 1695, to the Captain, certainly puts forth decided grievances. Though, from the whole tone of the letter, and specially from his appeal to the "Laws of Oleron," one is inclined to think that the writer was a bit of a "sealawyer" (11).

GOOMBROON, AUGUST THE 24TH, 1695

Capt Edgcombs—Sr The many abuses I have recd from you, with your unjust, illegall and arbitrary proceedings against me by a pretended power as Capt of an East India Ship, hath made me assume the liberty to informe you that your beating me with your cutlass at Mohilla upon the 15th March, with your beating and wounding me of 19th June, as also beating my servant and bluber the same day without any crime and your making me fast in order to duck me upon the 21st June, which is the next punishment unto death and not to be inflicted without martiall law after a sufficient triall and proof of being guilty of some notorious crime, but your accusation provinge false both before your officers and men rendred the ducking odious to them, in so much that they would not obey you notwithstanding your cutlass and threatening, knowing innosense and your justice, your sending your Steward to your cooke, with your order not to let the barber or my servant come into the cookroome, and if they come to take notice that they should not throw any of my powders amongst your victualls, for you did believe yourself poisoned or had gotten a dose already in your witer gruell, because for the four days past you was not well nor could not eat, your detaining me as a prisoner on board without letting me know the cause, your keeping and detaining three pints of Cordiall waters on board belonging to me wch I had presented to Mr Popham in a small case of his, your hindreing me from sending some goods ashoar which I had the Companies liberty for, your denving severall other priviledges that are due to me as chirurgeon, your threatening me with the law of Olerone, which I presume you have forgetting, or else would not have exceeded them so often as you have

done this voyage, Sr you may impose upon some of your officers and sailors who do not understand them laws, but know that I have read all the marine laws in practice, and particularly those of Olerone Wisby and the Hanstownes, with the statute laws appointed by King Charles the second for the regulating the Navy Royall, with Jure Maritime and Lex Mercatoria relating to marine laws, and have read some of the common and statute laws of England, as also of the civill laws upon which both the other depends, and am sensible that your proceedings with me and some others on board are illegal and without a precedent, for no man by the law of Olerone is to be beaten for lying on shore, but his wages are to be deducted for the time, and what damages are sustained by his absence, he is to make good, neither is any men obliged to receive from a master of a merchant ship any more than one blow and retire, if the master psue him he has liberty to defend himself, all Commission relating to martiall or marine laws without instructions are void, and all Commissions relating to marine affairs which are not from the Commissioners of the Admiralty are void by a grant from their Majesties to them, during his Majesties continueng them in their office. As for a pretended or assumed power as Capt of an East Indiaman, it is both illegall and arbitrary, and a master of a Collier of 50 tons to Newcastle may assume the same power as legally as an East Indiaman. All this I have concealed hitherto (notwithstanding the first provocations I have had from you to doe otherwise and shall for some time still doe the same) both from your officers and sailors lest it should lessen you and your officers command over your sailors. Sr I have served their Majesties in three severall of their capitall ships as master chirurgeon, I have served them also as Principall Surgeon to their hospitall at Plymoth and Surrey or over all Surgeons of the western ports of England, and likewise I have served as Chirurgeon Generall of their Majesties hospitalls in Flanders, and since as Chirurgeon to his Majesties household, where I was intrusted with his p son during the time of the engagement against the French at Landew. I have had betwixt five and six thousand wounded men under my care for cure this war, and have been intrusted with about forty thousand pounds of their Majesties moneys which I did faithfully dispencc to the uses I had it for, for all the services I have ample certificates to show, yet am taxed by you as a rogue and cheat and imbeezer of the medicines belonging to the ship. Therefore to cure you of that jealouse I have here inclosed sent you the list of what medicines were at first in the chest as also what medicines have been expended, which does not value of 5 pounds. Your chest and medicines cost £55 and I doe affirme there is not a bad or spoiled medicine amongst them, which by my care I have preserved. Sr in consideration of the abuses I have received from you, the denying me the priviledges and liberty which all Chirurgeons enjoy, I doe desire you to let me know what my crimes are, being hitherto ignorant of them, and if I doe not acquit myself of my accusation and plainly make it appear that your informers are prating and malicious rogues, I will willing suffer what punishment you will please to inflict upon me, and will publicly beg your pardon with all submission immaginable and true sorrow if guilty. Sr your complying with this just and modest desire of mine will make me forget all the injuries done to me and reestablish that love and respect which I bore to you before the Mohilla abuses. Sr I humbly beg you to take this into consideration, for if this is not complied within three days, I will deliver you your keys of your chest and will act no longer as Chirurgeon of your ship, let the consequences of it be what it will. I therefore desire if you doe not come on board yourself, that you would let me come ashoar, that I may prove myselfe either an honest man or a rogue, and I shall always acknowledge the obligation and ever after remaine Sr your most humble servant John Leckie

Gombroon, where the above letter was written, is the modern Bandar Abbas on the coast of Persia. Mohilla is one of the Comoro Islands, off the coast of Mozambique. Oléron is an island on the west coast of France, near La Rochelle, now in the department of Charente Inférieure. Wisby or Wisbeach, is a town in Cambridgeshire, formerly a seaport on the Wash. The punishment of ducking referred to as being next to that of death, is probably the old naval punishment of "Keelhauling" in which the victim was fastened to a rope carried from the ship's yard-arm on one side, underneath, to the other, and so dragged under the keel.

The Captains of Indiamen were necessarily invested with very considerable powers over all on board. More than a century after the date of Dr. Leckie's letter, in 1818, an Indiaman arrived in Bombay with a passenger on board who had been in prison for twenty-one days. The culprit was a young Lieutenant in the army, and the offence was whistling on the quarterdeck, in the presence of the Captain, after he had been told to desist! This exercise of arbitrary power cost the Captain a fine of five thousand rupees (12). And in Hough's "*Court-martials*" page 572, is noted a case in which an Assistant-Surgeon on the Bengal Establishment, about 1814, was seriously injured by a blow given by the Captain of an Indiaman, on which he was a passenger. He prosecuted the Captain in the Supreme Court at Calcutta, and got Rs. 5,000 damages.

That Surgeons were liable to, and sometimes deserved, punishment, is shewn by an entry in a log of the voyage to India of Captain Blyth's fleet in 1625, extracts from which are quoted by Foster (13). This log notes that, on 15th April, within a week of sailing, Edward Baynham, purser, and Basil Hull, Surgeon, of the *Falcon*, were put into the bilboes for getting drunk and refusing to attend prayers.

Employment as a Surgeon in the Marine Service was often, though by no means invariably, a steppingstone to a commission in the regular land services. Newly qualified medical men frequently made one or two voyages in an Indiaman as they do now in the great steam lines, for the sake of a change, and to see something of the world, before setting in practice, with no intention of joining the Company's service as a permanency. Many men who served in this way, as Surgeons of Indiamen, afterwards attained considerable success, and became more or less well known, in other totally different lines of life. Of some of these we will give short notices. The list is not exhaustive, but only includes a few out of many names.

Of all such men, who served temporarily in the Company's marine medical service, the most famous is the African explorer, *Mungo Park*. He was born near Selkirk on 10th September 1771, educated at Edinburgh University, and took the diploma of L. R. C. P., Ed., in 1791. He served as Surgeon's mate of the *Worcester*, East

Indiaman, in 1792-93. After his return he spent some years in practice near Selkirk. He sailed for West Africa, on his first expedition to try to discover the sources of the Niger, on 22nd May 1795, and, after four years in West Africa, reached England again on 22nd December 1799. He started on his second expedition on 30th January 1805, and was last heard of on the Niger on 17th November of the same year, after which no further news was received. The mystery of his disappearance was not finally cleared up until 1812, when it was ascertained that, after a fight with the natives, he was drowned in the Niger, towards the end of 1805.

A statue of Mungo Park stands in the centre of the public square at Selkirk. His eldest son, also named Mungo, received a commission in the Madras Medical Service on 8th May, 1822, but had a very short career in India, dying of cholera at Trichinopoly on 20th January 1823. His second son, Thomas, a midshipman in the Navy, in 1827 got leave to make an attempt to reach Boussa on the Niger, in search of traces of his father, but died of fever on the way, on 31st October, 1827.

James Lind was born in Scotland on 17th May, 1836. In 1766-67 he visited India and China as Surgeon to an Indiaman, and in 1768 graduated as M.D. at Edinburgh with a thesis entitled, "*De Febre Remittente Putrida Paludum quæ grassabatur in Bengala A.D. 1762*," a translation of which was published in 1772. He became F.R.C.P. Ed., in 1770, and F.R.S. on 18th December, 1777. In 1777 he was appointed physician to the Royal Household at Windsor. He died in London on 17th October, 1812. Contemporary with him was another *James Lind* or *Lynd*, who served in the Bengal Medical Service from 1771 to 1797, and was the author of a once popular work on Tropical Diseases, which reached its sixth edition in 1808.

John Clark was born at Roxburgh in 1744. After studying divinity at Edinburgh, he entered the E. I. Co.'s service as Surgeon's mate on an Indiaman, serving in the marine service up to 1775. He got the degree of M.D., St. Andrews, in 1773, and the diplomas of L.R.C.P., Ed., and F.R.C.P., Ed., in 1785. After quitting the sea, he settled in practice at Newcastle, where he founded the Newcastle dispensary, which developed into the Newcastle Infirmary, of which he became senior physician. He died at Bath on 15th April, 1805. He was the author of two works, "*Observations on Fevers and on the Scarlet Fever with Ulcerated Sore-throat at Newcastle in 1778*," London, 1780, and "*Observations on the Diseases in long Voyages to Hot Countries, particularly the East Indies*," 2 vols. London, 1792.

Charles Maclean had a somewhat stormy career. He entered the Company's marine medical service about 1790, and served successively as Surgeon to the *William Pitt*, the *Northumber-*

land, and the *Haughton*. He is mentioned in the *Madras Press Lists*, on 16th September 1793, as Surgeon of the *Haughton*. The *Dictionary of National Biography* says that he was in charge of a hospital in Calcutta about 1792, but his name does not appear in any Bengal medical list, nor have I ever come across any other reference to any service of his in Bengal. In 1798 he was serving at Batavia and Bencoolen, and, according to the same authority, was deported by order of the newly-appointed Governor-General, Lord Mornington (Wellesley) in the same year. In 1800 he got the degree of M.D. from Marischal College, Aberdeen. In April 1804, he was appointed to the Army Medical Department, and served at York Hospital, Chelsea, and at Chelmsford, but left the service without leave, and was advertised in the "*Hue and Cry*" as a deserter. No further steps were taken against him. In 1809 or 1810 he was appointed Lecturer to the E. I. Co. on the Diseases of hot climates, in 1815 to 1817 he travelled in the East, and in 1818 was re-appointed to the same lectureship. He died about 1824. He was the author of several works, both medical and political, the list is too long to quote, all are long since forgotten.

Neil Arnott was born at Airthroath on 15th May 1788, studied at Marischal College, Aberdeen, where he became M.A. in 1805, and at St. George's, and entered the Company's marine medical service in 1807, making two voyages to China. After leaving the ser., he settled in London in 1811, and got the diplomas and degrees of M.R.C.S., 1813, M.D., Marischal College, Aberdeen, in 1814, L.R.C.P., London, in 1817. In 1816 he became physician to the French, and afterwards to the Spanish Embassy. He invented the water bed in 1832, and Arnott's stove in 1838. He was appointed an original member of the Senate of London University in 1836, Physician Extraordinary to the Queen in 1838, F.R.S. in 1838, and member of the General Medical Council in 1854. In the same year, 1854, he received the Rumford medal of the Royal Society, and the Legion of Honour, with a gold medal, at the Paris Exhibition of 1855. He died in London on 22nd March 1874. He was the author of several works, "*The Elements of Physics*," 1827, which ran through seven editions, and was translated into French, German, Dutch and Spanish, "*A Survey of Human Progress*," 1861, "*Arithmetic*," 1867, and a pamphlet on "*National Education*" in 1870.

John Scott was born at Benholme, Kincardine, on 26th January 1797, studied at Marischal College, Aberdeen, from 1810 to 1814, but did not graduate there, took the diploma of L.R.C.S., Ed., in 1817, and the M.D. of Edinburgh in 1820, studied also at the London Hospital, and went for two voyages as surgeon in an Indiaman, the second in the *Farquharson*. He settled in practice at Barnes in 1824, and succeeded Dr.

Hume in 1845 as Examining Physician to the E. I. Co. He died of angina on 18th January, 1859.

James Spence was born in Edinburgh on 31st March, 1812, became L.R.C.S., Edin., in 1832, and made two voyages as Surgeon to an East Indiaman in 1832-33. After his return he settled in practice as a Surgeon in Edinburgh, became F.R.C.S., Ed., in 1849, Lecturer on Surgery in the Extramural School the same year, Assistant-Surgeon to the Royal Infirmary in 1850, and full Surgeon in 1854, Professor of Surgery at Edinburgh University in 1864, President of the Royal College of Surgeons, Edinburgh, in 1867-68, Surgeon-in-ordinary to the Queen in Scotland in 1868 and Member of the General Medical Council in 1881. He died in Edinburgh on 6th June, 1882. A few of the older members of the Service still remember him as Professor of Surgery at Edinburgh.

We may conclude by mentioning a few well-known members of the I. M. S. who had served in the Marine Service previous to receiving commissions in the land forces.

Francis Buchanan Hamilton, the well-known author of "*A journey from Madras through the countries of Mysore, Canara and Malabar*," "*An Account of the Kingdom of Nepal*," "*The Fishes of the Ganges*," and "*Eastern India*," made four voyages as Surgeon to an Indiaman. He sailed as Surgeon of the *Duke of Montrose* on 22nd May 1785 for Bombay, returning in May 1787, in the same ship to Bombay and China in 1788-89, in the *Phanra*, to the Coromandel Coast and Bengal, in 1791-92, and in the *Rose*, to Bengal in 1794. On arrival in Bengal he was appointed Assistant Surgeon on the Bengal Establishment on 26th September 1794. He retired on 14th August 1816, and died on 15th June 1829.

William Charles Maclean, whom a few seniors still remember as Professor of Military Medicine at Netley, was born at Ayr, on 29th November 1811, became M.D., Edinburgh, in 1833, and served as Surgeon to the Indiamen, *Upton Castle* and *Marquis Camden*, in 1833-35. He entered the Madras Service as Assistant Surgeon on 27th April 1838, served in the China War of 1840-43, and afterwards as Residency Surgeon at Haiderabad, was appointed Professor of Military Medicine in the Army Medical School at Fort Pitt, Chatham, in March 1861, and subsequently held the same appointment at Netley up to 1885. He died at Sidmouth, Devon, on 10th November 1898.

Joseph Hume was born at Montrose on 22nd January 1777, and served as (unqualified) Surgeon to an Indiaman in 1797-99. He entered the Bengal Service as Assistant Surgeon on 27th August 1799, served in the second Maratha War of 1802-04, with the 18th Native Infantry, and resigned in February 1808, with a fortune of £40,000, said to have been made out of Army contracts. He was elected M.P. for Weymouth

in 1812, and subsequently sat for the Montrose Burghs, 1813-1830, for Middlesex, 1830-37, Kilkenny town, 1837-41, and the Montrose Burghs again 1842-55. He was created a Privy Councillor, an honour which only one other member of the I M S has attained, and died at Bunley Hall, Norfolk, on 20th February 1855.

Alexander Grant was born in January 1817, became L R C S, Ed, in 1838, and made a voyage to Madras, Calcutta, and China, as Surgeon to the Indiaman *Thames* in 1838-40. He entered the Bengal Service on 11th November 1840, and served in the China War of 1841-42, and with the *Dépôt Hospital* in the Sutlej Campaign of 1845-46. After serving as Civil Surgeon of Bhagalpur, 1845 and 1846-48, and Chapin, 1848-49, he was appointed Medical Officer to the Governor-General, Lord Dalhousie, and served in that capacity till Dalhousie left India in the spring of 1856, when he accompanied the Governor-General on the voyage home. Shortly before he left India, Dalhousie appointed Grant, Superintendent of the Calcutta General Hospital. He joined in December 1856, but only held that appointment for one month, becoming Apothecary-General (Principal Medical Store-keeper) in January 1857. He left India on 22nd February 1861, was appointed Honorary Surgeon to the Queen on 6th September 1861, retired on 23rd August 1863, and died in London on 3rd January 1900. Along with John Grant, his predecessor as Apothecary-General (no relation, though both bore the same surname), he started the *Indian Annals of Medical Science* in October 1853, and continued to edit that journal up to November 1860. Alexander Grant's life was written, a few years ago, by Dr George Smith, LL D C I E, under the title of "Physician and Friend" (London Murray, 1902), a most interesting work.

REFERENCES

- (1) Letter from Count 17th March 1784, published in "Some old Eighteenth Century Army Lists," *Indian Medical Gazette*, June 1909 p 235
- (2) Hakluyt, Everyman's Library Edition, Vol VIII, p 254
- (3) Among the parchment records at the India office in the List of General Records 1599 to 1879, are No 18a "Proclamation of the Dutch on taking possession of St Helena" dated 1633, and "Letters Patent granting the island of St Helena to the East India Company" dated 16th December 1673
- (4) Dryden wrote a tragedy on the Massacre at Amboyna
- (5) Sainsbury, Calendar of State Papers, Colonial Series, East Indies, China and Japan, Vol V, p 76, No 91
- (6) *Ibid*, p 486, No 513
- (7) *Ibid*, Vol III, page 296, No 483. The original "Narrative of the massacre" will be found in this volume, pp 303, *et seq*
- (8) Autobiography of Sir James McGregor, page 116
- (9) Thomas Winston (1575-1655)—one of the leading London physicians of the time, was M A, 1602, M D, 1608, of Cambridge, also M D, Padua
- (10) Foster, English Factories in India 1624-1629, p 164
- (11) Selections from the Letters, Despatches, and other State Papers preserved in the Bombay Secretariat Home Series Vol I Edited by G W Forrest, B A, Elphinstone College. Printed at the Government Central Press 1887—(Selections from the Bombay Letters, 1677-1742, p 165)
- (12) "Glimpses of Old Bombay and Western India," by James Douglas, p 30
- (13) Foster—"The English Factories in India, 1624-1629," p 103

SMITH'S OPERATION OF EXTRACTION OF THE LENS IN ITS CAPSULE

By G T BIRDWOOD, M D,

MAJOR, I M S,

Civil Surgeon, Agra

IN the June number, 1906, of this Journal, I published 311 cases of extraction of the lens in its capsule. I was led to try the operation from reading Major Smith's account of it, and on hearing of his splendid results. In this series of cases I had an escape of vitreous of 35 per cent, and on the whole I came to the conclusion that it was an operation of great difficulty and that the average operator would get 30 per cent escapes of vitreous. In 1907 I was away on leave. In 1908 on return I adopted again the ordinary capsulotomy operation, till I should have an opportunity of seeing Major Smith himself perform the operation. This opportunity arose in October 1909, when I went to Jullundur, where Major Smith gladly welcomed me. There were at Jullundur also three American Surgeons, well-known eye specialists (Dr Green of Dayton Dr Vail of Cincinnati, and Dr Clerk of Columbus), learning the operation. Their opinions will be published in a coming number of the American Ophthalmic review, published in Chicago.

To my astonishment I found that the 311 cases in which I had attempted to remove the lens in its capsule in 1906 were not performed by Smith's technique at all. I had read Smith's account of it carefully, and had tried to follow it, and I have since read Maynard's account of it in his recent book. Neither account, seems to convey a clear idea of the operation and without seeing it done, it is difficult to grasp the principles. In order to do the operation successfully, I think, it is necessary to be taught how to do it, either by Major Smith or one of his disciples. Like many other delicate scientific operations, such as the making of a high power microscope or the setting of a chronometer, it needs to be taught to a novice by a master in the art. I think that some surgeons like myself have attempted the operation without having seen it done and, obtaining indifferent results, have condemned it. In the 311 cases I attempted, I stood behind the patient's head and looked down on the globe from over the eyebrows, and made pressure with the head of the strabismus hook at the lower edge of the lens and counter pressure at the upper edge of the incision with a spoon held ready to receive the lens. This is not Smith's operation. In his operation the operator is seated, and the lid is held straight, vertically forward, and the operator has to bend over the patient's right shoulder to see the eye, which he looks at over the cheek, and the lens is dislodged by the point of the strabismus hook and not the bend of the hook. I think, many would attempt the operation if a more detailed description of it were given, I have therefore given below a description of the operation as I have observed it.

SMITH'S OPERATION OF EXTRACTION OF THE LENS IN ITS CAPSULE

By MAJOR G T BIRDWOOD, M.D., F.M.S.,

Civil Surgeon, Agaña

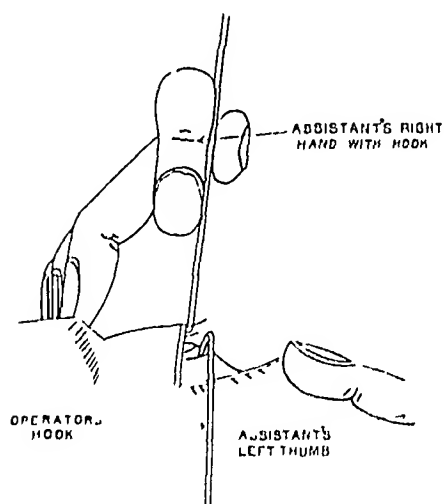


FIG 1 METHOD OF ELEVATION OF THE LIDS IN SMITH'S OPERATION
SEEN FROM RIGHT SIDE

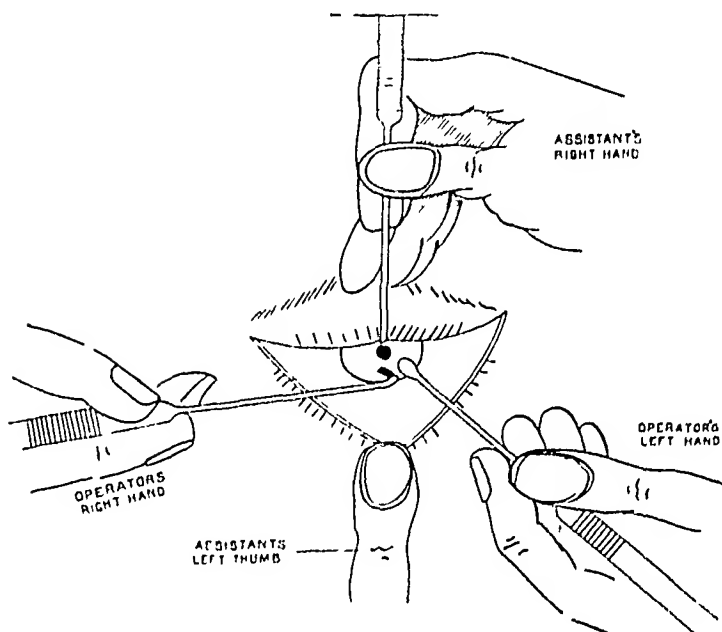


FIG 2 SMITH'S OPERATION

hoping it may help others. Since I have returned to Agia in the month of October I have done 35 cases with an escape of vitreous in four cases. From the great certainty with which Major Smith does the operation without mishap, and the comparative certainty with which the other surgeons at Jullundur and myself were able to do it after being shown how by Major Smith, I am convinced that the surgeon who is constantly operating for cataract (as many civil surgeons are) ought to be able to do the operation with a less than 10 per cent escapes of vitreous. The good operator or specialist would get less than 5 per cent vitreous escape and 97 per cent to 98 per cent successful results with good and useful eyes.

It is an operation requiring great delicacy of perception of touch and steadiness of hand, but for a man who aspires to be a specialist in the art of extraction of the lens, it is in my opinion the operation of choice and election for both mature and immature cataracts. Major Herbert says, that "the operation violates the essential conservatism of correct surgery and not one atom of evidence has been advanced sufficient to justify the removal of the transparent capsule." This is an opinion I do not in the least agree with. In the majority of capsulotomy operations irritating sticky cortex is left adherent to the capsule in the eye, and to leave such in the eye, when it is possible to remove it without undue risk, is failure to adopt the correct procedure. Smith's operation is amply justified by the splendid results of those who are capable of doing it. It has been asserted that Major Smith has a special knack or technique in doing the operation which the ordinary operator cannot acquire. This is not the case. It is, however, a special technique which has to be and can be learnt. Because it is a delicate and difficult operation is no argument that it is not the correct procedure, but rather an argument that only good specialist should attempt the operation. There is no reason why the operator who has done 100 capsulotomy operations should not acquire the delicacy of touch and steadiness of hand to enable him to learn and perform successfully Smith's operation. Other operators before Smith have removed the lens in its capsule, but Smith has in my opinion introduced many points of new technique which combine together to form a new operation, one that will stand the test of time and replace the old operation in the hands of the best specialists.

In 1904 and 1905 I performed 849 capsulotomy operations, and in 1908 and 1909 I did 736 with good results in 90 per cent, so that I am not altering my procedure lightly. I know that 35 extractions by Smith's method, which I have done since he showed me how to do his operation, is a small number to go into print on, but I only publish this small number as I am leaving Agia, and will get no more cataracts for some time. Those cases which I have seen Major Smith and others do at Jullundur and my own

experience of these cases have fully convinced me that it is the correct procedure, and that I shall, by adopting it, give the majority of my patients the best and most useful eyes. I think that every civil surgeon who is a keen operator should go to Jullundur, even if only for a few days, to see Major Smith for himself and to learn the operation, and I think that every teacher of eye surgery should know the operation and be able to teach it to his pupils.

SMITH'S OPERATION IN DETAIL

It is an operation that allows of few mistakes, a misplaced incision, either too small, or too far back, or undue or misapplied pressure will end in its failure. It requires persistent steadiness of hand—

(1) The operator must be sitting down on a stool 2 feet high, behind the patient's head. The patient is on a table 2 feet 7 inch high. This is important as it gives the operator great steadiness of hand compared with that obtainable in the standing position.

(2) The eyebrows, lids, and instruments are sterilized in whatever method each operator prefers. The speculum is inserted between the lids. The eyebrow is then strongly drawn upwards and the speculum also raised off the globe.

A stream of 1 in 2,000 perchloride of mercury is then strongly douched into the fornices from an irrigator 3 feet above the patient's head. By drawing the eyebrow upwards every corner of the upper fornix is made visible and easily reached by the lotion.

(3) The incision is then made. It must be large. It is very nearly but not quite half the circumference of the cornea. It is commenced slightly behind the sclerocorneal junction and brought out slightly in the cornea, the edge of the knife being turned slightly upwards before completion of the incision.

(4) An iridectomy of moderate size is then done.

(5) The speculum is removed and all fluid is squeezed out of the conjunctival sac by pressing a piece of cotton wool across the closed lids from the inner to the outer canthus.

(6) The assistant then takes a stout strabismus hook in the thumb and index finger of his right hand and draws the upper lid vertically forwards, as in fig I. The operator then cannot see the globe unless he leans over the right shoulder of the patient. At the same time with the middle, ring and small finger of the same hand the assistant draws the eyebrow forcibly up. In this way there is no pressure whatever on the globe. With the thumb of his left hand he draws the lower lid down. Smith attaches great importance to the method in which the assistant elevates the lid. It is a little difficult at first, but after a few days an intelligent assistant can be taught it.

plague staff nowadays are devoted to dealing with the epizootic, the confining of the infected rodent population to a limited area, the destruction of all rodents in such area and the taking of measures to prevent sick or dead rodents escaping or being carried away in merchandise. The precautionary measures against the disease in man are mainly such as will merely ensure the early discovery of cases and then removal to and treatment in hospital, the disinfecting of infected premises and the keeping under surveillance of contacts, and people living in the worst rat-infected areas.

As soon as the plague staff had been organised at King William's Town, a circular letter was issued to employers of labour, requesting them to report at once if any of their employees were sick or absent from work under suspicious circumstances. Europeans in the town had had considerable experience of plague operations, for this was the third outbreak which had occurred since 1903, and the necessity for complying with the request was generally well recognised. The enquiring into the reasons why natives were absent from work, and the tracing of such absentees, involved often extensive investigations, usually with negative results, for natives in Kaffraria often suddenly absent themselves to attend beer drinks, or for other reasons, without informing their employers. As a rule, therefore, most employers waited a fortnight or three weeks before reporting the absence of their boys, instead of reporting at once, as had been requested.

On July 28th, the Railway Cartage Contractor in the town reported to me that one of his native boys, who had been working for him on and off for years, had drawn his wages at midday on Saturday, the 23rd June, and had not yet returned to work, also that the boy's father, who also worked for him, had left suddenly on the 9th July, and had not returned, although he had wages due to him. He stated that it was rumoured amongst the other boys employed by him that these two were either sick or dead in the district. He was not, however, able to ascertain where they were supposed to be. At this time rather a severe epidemic of influenza was occurring in the town and district, and the boys' friends, when interviewed, stated that they had heard that these boys had had influenza. Further enquiry elicited that these boys came from one of two locations, either that known as Dubu's, a small location eight miles from King William's Town, or the Izeli location, a large centre, containing several thousand natives, and situated about 12 miles away from King William's Town, in the opposite direction to Dubu's. As soon as this was known, I went out to Dubu's location on the 1st August, and as a result of what I ascertained had happened there, and what I found at King William's Town the same afternoon on my return to the town, I arranged to proceed out to Izeli the following morning.

On arrival at the latter place it was found that a considerable epidemic of influenza was occurring, as in the rest of the district, but, in addition, there had been a most suspicious outbreak of disease amongst the family and associates of the two natives above mentioned, who, up to the 23rd June and 9th July, respectively, had been employed by the Cartage Contractor at King William's Town. One of these had died just before my arrival, and on holding a *post-mortem* examination it was seen that the disease was pneumonic plague. This was subsequently bacteriologically confirmed.

Altogether, five cases had occurred at Izeli, in connection with which the following history was obtained—

Case 1—Tola, known in King William's Town as "Tommy," male Kafir, aged 32, employed by the Railway Cartage Contractor in King William's Town until the 23rd June. After receiving his wages at noon on this day, he visited certain stores in King William's Town, and notably one off the Market Square, where he purchased a quantity of grain and other food-stuffs. A few days after his visit to the latter store, this was found to be very badly infected, hundreds of dead and dying rodents being discovered. After spending half an hour or more in this store, he walked to a hut situated on the outskirts of the Izeli location belonging to his aunt, named Nonie Kazie, arriving about 5 p.m., the same day. In the evening he visited some friends in a neighbouring kraal, but returned to sleep in his aunt's hut that night. On the morning of the 24th he attended a beer drink at the kraal he had visited the evening before. He returned to his aunt's hut at midday, sober, and spent the rest of the day chatting with his aunt and neighbours. He slept in the hut that night, but woke his aunt about 11 p.m., stating that he felt very ill with severe headache, pains in his head, back, legs, and especially in his chest. He rapidly became worse, commenced to cough and expectorate bloody sputum. At the end of 24 hours he was wildly delirious and gradually passed into a comatose condition, dying on the 5th July. Throughout his illness he was nursed by his aunt, who was the only other occupant of the hut, the latter's husband and sons being at work in the Transvaal. After his death some neighbours dug a grave about 50 yards away from the hut, and helped the aunt to bury the corpse.

Case 2—Nonie Kazie, female Kafir, aged 62, aunt of Case 1, after the death of the latter she remained in her hut and apparently had little communication with her neighbours. She appears to have been suffering from a chronic cough for many years, probably due to phthisis. Three days after her nephew's death, namely, on the 8th July, she herself became suddenly acutely ill with similar symptoms, and sent word in by a neighbour to King William's Town to her brother, Dumezwani, who was also working for the

Railway Cutrage Contractor in that town. The latter left his work on the following day, in company with his wife, Umfazie, and remaining son, July, and arrived the same evening and took charge of his sister. By the time he arrived, however, she also was desperately ill, she rapidly became worse and died—on the 13th July. The body was buried by Dumezweni and July the same day in a grave dug alongside that of Case 1.

Case 3—Dumezweni, male Kafir, aged 58 (father of Case 1 and brother of Case 2), together with his wife, Umfazie, and son, July, decided to remain in occupation of the hut after the death of Case 2, so as to look after his brother-in-law's possessions until the return of the latter from the Transvaal. On the evening of the 14th July, however, he himself suddenly became ill and commenced to develop the same sickness as his relatives had had. Believing the family to be bewitched, on the 16th July he got his son to help him over to another kraal about a quarter of a mile away, where a Kafir, named Putini, resided. The latter was a notorious witch-doctor, famed throughout Kafir Land for the potency of his spells. He agreed to cure Dumezweni, provided he was paid a fee of a blue goat. After some bargaining, July fetched him a goat from his uncle's flock, and thereupon the witch-doctor treated Dumezweni by rattling bones, smearing his feet with cow dung and ashes, giving him a decoction of herbs to drink, and pretending to throw a spell upon him. The patient was taken back to the hut, but failed to improve and on the following day was again taken back to the witch-doctor. The latter stated that the first fee paid him had been insufficient, but that he could certainly cure him if a more substantial fee were paid. He suggested three cows in calf, but eventually agreed to accept a blue cow in calf. This fee was also paid, and after receiving another course of the treatment, Dumezweni was again taken back to his hut, where he rapidly became worse, commenced to cough and spit up blood, became delirious and finally died on the 20th July, the body was buried the same day by his son alongside the other graves.

His wife, Umfazie, and the surviving son, July, then decided that the place must indeed be bewitched, so they sent the family flock away to friends in another location, and then destroyed the huts and kraal, with all the family possessions by fire. July returned on the 22nd instant to King William's Town, Umfazie also leaving the location with him, but parting from him and proceeding to Dubu's location, beyond King William's Town.

Case 4—Putini, Kafir male, aged 60, the witch-doctor above mentioned who had been consulted by Case 3 on the 16th and 17th July. The day after the last visit paid by this patient, namely, on the 18th, he himself sickened with exactly similar symptoms. At the onset of his

illness he ordered all his family out of the hut, and, his wife being dead, he instructed no one to come near him except Bono, one of his daughters, an ugly, deformed woman of 35 who was valueless in the marriage market and whom he therefore considered could be safely used as a nurse without running any risk of losing "lobola." After making these arrangements he rapidly sank, and died on the evening of the 25th, the body being buried by his family within an hour after death, close to the hut.

Case 5—Bono, aged 35, daughter of Putini, Case 4, nursed her father during his illness, and two days after his death, namely, on the 27th July, herself developed the disease and died on the morning of the 2nd August just prior to my arrival at the location. Throughout her illness she had been unattended by anyone, and, in accordance with her father's orders, no one besides Bono had entered the hut from the time he became ill, except to place milk and water just outside the door. Putini's orders had been obeyed to the letter, even after his death, as his family considered that the disaster which had overtaken the family was probably due to the machinations of some powerful witch-doctor, who, being envious of Putini's skill, had at length succeeded in destroying his rival. Putini himself apparently had been the only person to recognise that a fatal infectious disease had broken out in the location.

A careful *post-mortem* on the body of case 5 was held, and from the macroscopical appearances a diagnosis of Pneumonic Plague was made. Portions of organs were retained, and a bacteriological examination of these, subsequently, in King William's Town and in Cape Town confirmed the diagnosis.

The infected hut, and the effects of all the contacts, were disinfected, and arrangements were made for the latter to be kept under surveillance by a reliable headman, the only contacts escaping being Umfazie, the wife of Case 3, who had gone to Dubu's location, as already mentioned, and her son, July, who had returned to King William's Town. On the morning of the 3rd August, July was traced and found to be in good health.

It will now be necessary to mention the facts elicited at Dubu's location on the 1st August and those discovered in King William's Town on my return on the afternoon of the same day.

Case 6—Umfazie, Kafir female, aged 54, wife of Case 3, had arrived at the kraal of her brother, Nijilo, in Dubu's location on the evening of the 22nd July, and informed him of what had happened to her family. She remained at her brother's hut but complained of feeling seedy towards nightfall, and by the early morning of the following day had fever, acute pain in her chest, and a cough. At the end of 24 hours she was coughing up blood-stained sputum and had become delirious. She died on the 26th, and the body was buried in a grave dug near the kraal on

the following day During her illness she was given a hut to occupy by herself, and, so it was stated, was looked after by her brother and his family She was reported to have arrived at the location by herself on the 22nd, and it was stated that, besides the members of her brother's family, no-one had come in contact with her This, as will be seen later, was subsequently proved to be untrue

All the members of the family except one were traced in the location The contact who was absent was the patient's brother He had left the location on the morning of the 30th July with the object of seeing the Magistrate to request an investigation into the deaths in his sister's family It was stated that he had been taken ill on the way, and that, instead of going to the Magistrate, as he had intended, he had gone to one of the local doctors in King William's Town, who had at once caused him to be admitted into the Grey Hospital I thereupon hurried back to King William's Town and ascertained the following —

Case 7 — Nijilo, Kafir male, aged 61, brother of Case 6, was admitted to the Grey Hospital acutely ill on the evening of the 30th July, on the order of one of the local practitioners He was at first regarded as probably a case of Enteric Fever, but on the 31st had become delirious, had high fever and had commenced to cough and was soon expectorating sputum tinged with blood The Resident Medical Officer and the Visiting Medical Officer, under whose care he had been admitted, then diagnosed the case as one of acute Pneumonia The patient got rapidly worse, and died on the 1st The body was coffined and was just being taken away for burial when I arrived at the hospital The burial was delayed, a *post-mortem* examination at once held, and a diagnosis of Pneumonic Plague provisionally made, which was subsequently confirmed bacteriologically

As soon as the *post-mortem* examination had been completed, the ward of the hospital was temporarily closed and after the patients had been placed in beds under the varendah, it was disinfected An officer was sent back to Dubu's location, and arranged for the contacts there being kept under surveillance by a reliable headman He disinfected the infected huts and effects, the hut in which Case 6 had died being destroyed by fire at the request of the surviving relatives On the morning of the 2nd I went out to Izeli, with the results already known

(To be continued)

AN OPERATION FOR VARICOSE VEINS

By C DUER,

MAJOR, I M S,

Civil Surgeon, Maymyo

I SAW this operation performed several times in the United States It appears to have advantages, but I have had no opportunity of trying it myself

It requires one special instrument which consists essentially of a wire ring about half-an-inch in diameter, set at an angle of about 120° on a slender shaft and handle of a certain degree of stiffness about eighteen inches long It could be readily made out of a piece of moderately stiff wire

We will suppose the entire internal saphenous vein to be varicose A small incision is made over the saphenous opening, and the vein is isolated, and divided between two ligatures The distal end of the vein is passed through the ring of the special instrument which is then worked down subcutaneously along the vein tearing through its tributaries, a manoeuvre which is effected without difficulty No appreciable amount of blood escapes from the ruptured tributaries When the instrument has been worked down as far as can be done conveniently (a foot or more) a short incision is made over its ring, and the isolated vein is withdrawn It is again threaded through the ring and the same procedure is repeated In this way the entire internal saphenous vein is removed, only three or four small incisions being required

A Mirror of Hospital Practice.

THREE CASES OF HYDATID CYST SITUATE IN THE EYE OR IN THE ORBIT

By R H ELLIOT,

MAJOR, I M S,

AND

A C INGRAM,

CAPTAIN, I M S

(From the Government Ophthalmic Hospital, Madras)

HYDATID cyst of the orbit has been spoken of by Mr Devereux Marshall as one of the "rarities of surgery," whilst in the eyeball itself, he had been only able to find the records of three cases, when he published his own case of orbital hydatid in 1904

The fact that we have met with no less than three cases of hydatid in and about the eye in three years, and that too in a country where hydatid is admittedly very rare seems to call for the publication of the notes of these cases Nor is the interest lessened by the fact that whilst two are cases of orbital hydatid, one was situate on the globe itself

HYDATID CYST OF ORBIT

Case I — V Kistnan, a male Hindu, *æ*t 24, a cultivator, at present engaged as a Municipal rubbish cart-man, was admitted into the Government Ophthalmic Hospital, Madras, on August 7th 1907, under Major Elliot with marked forward proptosis on the right side, and with loss of vision He gave a history that the trouble

had lasted nine months, gradually increasing. The man was a native of Nellore, but it is uncertain whether or not he had actually lived on black cotton soil.

The cornea was opaque, and the eye was sub-acuteely inflamed and blind. The diagnosis of a tumour within the muscular cone was confirmed by operation, the eye being removed under chloroform. A tense cyst about $\frac{3}{4}$ inch in diameter was found in the above situation, filling up the back of the orbit, this burst, giving exit to clear fluid, during removal, and was easily separated from the surrounding tissues, it was evidently a hydatid cyst. The patient made an uneventful recovery.

Captain Kulkpatrick, I.M.S., Professor of Pathology, Madras Medical College, very kindly examined the removed parts. He found the cyst to be a typical hydatid, without hooks, heads or secondary cysts. His farther report is as follows—Microscopic examination of eye sent with the hydatid cyst shows much thickening of the conjunctiva surrounding the limbus, cornea opaque, anterior and posterior synechiae present, lens cataractous, ciliary body atrophic.

Case II—E. Ponnammah, age 15 female, caste, Hindu, residence, Madras. Admitted to the G. O. Hospital, Madras, under Major Elliot on 18th August 1909.

Disease—Hydatid cyst in orbit.

Has always lived in Madras. Never lived on black cotton soil.

Some people who lived in the same house bled dogs, but she never interfered with the animals. She never lived with people who kept sheep or goats.

Has no recollection of ever having received a blow on the eye.

Previous history—The patient says that 11 months ago a swelling of the left upper lid was noticed which continued unchanged for 7 months. Four months ago a small tumour, the size of a peppercorn, was noticed at the inner angle of the left upper lid, this gradually increased in size without any pain. On admission an oval tumour $1\frac{1}{2}$ inches long, $\frac{3}{4}$ inch broad, was found in the upper inner quadrant of the orbit. It was moulded on to the eye being slightly concave on its ocular surface. The skin and superficial parts were freely movable over it. It could not be easily moved on the deeper parts but did not appear to pass deeply into the orbit though the finger could not be got behind it. On 18th August 1909 it was dissected out. It shelled out easily and with comparatively little hæmorrhage, its firmest attachments lying posteriorly. On carefully opening it creamy yellow pus welled up from the sac. This was followed by a cyst, oval in shape, 13 mm long and 10 mm wide, in the depth of which at one point could be seen a whitish yellow mass which was evidently an invagination. The point of invagination was clearly marked by an oval slit up which and into the cul-de-sac of the invaginated

part pus appeared to pass freely. The remaining contents of the sac were not interfered with. The whole cyst was sent to Captain Ingram, Acting Professor of Pathology.

REPORT BY CAPTAIN A. C. INGRAM, M.D.

Specimen received in Glycerine

A PORTION of reddish brown tissue apparently of an inflammatory nature, forming the almost complete wall of a cavity 2 cm long by 1 cm broad, accompanied by one small cyst, and the wall of a similar collapsed cyst. The complete cyst presents all the appearances of an hydatid cyst with a rather more opaque wall than usual, but the cyst is flaccid, and at one spot there appears to be an invagination into the cyst which presents an opaque white appearance.

Microscopically, the wall of the collapsed cyst has the typical laminated structure of an hydatid cyst, but adhering to its outer surface are a number of leucocytes in a condition of partial degeneration.

The other cyst presented all the appearances of an hydatid cyst, but did not contain any scolices or hooklets. The invagination appears to be a broad capsule which has become completely filled with leucocytes.

The outer tissue consists of inflammatory granulation tissue with a thick layer of pus cells on its inner surface, *z.e.*, it is merely the wall of an abscess.

Case III—Pushpamma, *æt* 10, Hindu female of no caste. Admitted to Government Ophthalmic Hospital, Madras, under Captain Ingram (Acting for Superintendent), on 5th October 1908.

Operation performed on 12th October 1908.

A small red, inflamed, rounded, ill-defined swelling of the ocular conjunctiva, situated on the upper nasal side of the right eye.

The conjunctiva was incised over the swelling and a drop of thin grey pus escaped, on enlarging the aperture from which the pus came, a small thin-walled clear transparent cyst escaped disclosing a small cavity.

The tissues around the cavity thus disclosed, were thickened and inflamed, and were therefore cut away as far as possible.

The wound healed rapidly with a little suppuration. The cyst was about the size of a split pea with flaccid walls, and contained a small quantity of fluid, in which were typical hydatid scolices and hooklets.

The tissues around the cyst consisted of inflammatory tissue and pyogenic membrane.

REMARKS

Ages of the patients—All three were young people aged respectively 24, 10 and 15 years. This is in accordance with what others have found to hold for orbital hydatid.

Duration affection had lasted—The growth of orbital hydatid is said to be measured by

years. In one of our cases it had only been noticed nine months and in another eleven months, whilst in the third the history, though not very reliable, was only of four months.

Nature and attachments of Ectocyst—The outer cyst in all three cases presented the usual characters. In two of the three cases the tumour was easily dissected out from the surrounding parts. In the third in which suppuration had taken place the adhesions were close. In the 1908 and 1909 cases actual hydatid cysts floated in a purulent fluid, contained in the ectocyst. In the 1909 case there were two hydatid cysts present, both of which must be regarded as possible mother-cysts. It has often been pointed out that the ectocyst, though apparently of inflammatory origin, has very loose attachments to the tissues which enclose it, unless suppuration has occurred. Our cases illustrate this point well.

Contents of Endo-cyst—In the 1907 case the cyst was sterile, though it had lasted nine months. In the 1909 case blood capsule was apparently developing when suppuration supervened. In the 1908 case in the girl of only ten years of age and with the shortest (not very reliable) history of all, typical hooklets and scolices were found. Leuckart points out that, in the course of his experiments, he found that echinococcus cysts never proliferated until after a full four months' growth, and that sterile cysts were more common in some situations than in others. Lawford has ascribed the sterility of hydatids in the orbit, to the environment determining early operation before proliferation had time to take place. Leuckart stated that he knew of no authentic case in which an echinococcus smaller than a walnut contained daughter cysts. In our 1908 case the cyst no larger than a split pea contained scolices and hooklets.

Shape—One of our three cases presented the usual spherical shape of hydatids, the second was oval both in its ectocyst and its inner true cyst, and the third was doubtful, on account of its flaccidity.

Location—One was situate in the muscular cone, one in the upper-inner quadrant of the orbit, and one was sub-conjunctival. Cabaut stated of his 35 cases that they generally lay in or about the muscular cone. Parsons says that hydatids may occur in any position, but are slightly more common below and up-and-out. Our ocular case is of interest as, so far as we are aware, only four previous cases of hydatid of the eyeball are on record. We have dealt with these in the bibliography.

Trauma—In about two third of the Buenos Ayres cases injury was said to have played a part. Two of our cases definitely denied injury and in the third, the notes show no mention of it, though it was not specifically excluded.

Habits of patients—One of our patients had lived in a house where dogs were bred, but had nothing to do with sheep, one had never had

anything to do with sheep and dogs, and in the third no record exists on this head. Cabaut made much of the association of nearly all of his cases with sheep and dogs.

Residence of patient—We learnt from Captain H. Kulkpatrick (Professor of Pathology, Madras Medical College) that the Black Cotton districts of S. India are supposed to furnish the cases of hydatid met with in Madras. In not one of our cases have we been able to trace this connection with any certainty.

State of eye—Cabaut found the eye disorganised in some of his cases. In our 1907 case the pressure of the tumour was apparently accountable for the destruction of the eye. In the remaining two cases the globe was quite healthy.

Sex of patients—Taking all parts of the body into account females are said to suffer from hydatid more frequently than males (436 women to 233 men, according to Neisser), whilst the opposite rule is said to hold for orbital hydatid. Two of our cases were females and one a male. The numbers are, however, too small for any deduction.

Site frequency—Cobbold gives the frequency of hydatid in the orbit relatively to hydatid in all other parts as 1 in 136. Leuckart gives it as 1 in 327. During the ten years ending with the year 1907 no entry under the heading of hydatid appears on the books of the Government Eye Hospital, Madras, though 98,375 new out-patients passed through the hospital during this period. Nor are we aware of a single case of hydatid in connection with the eye or orbit published in India up to date. In the General Hospital, Madras, eleven patients have been treated for hydatid during the last thirteen years (*vide table attached*). During this period over 700,000 out-patients have passed through the hospital. It is therefore clear that hydatid is a rare condition in South India. In Buenos Ayres where it is common, Cabaut found 35 cases in 165,000 out-patients (roughly between 1 in 4,000 and 1 in 5,000). We have given in an appendix the bibliography of the subject so far as we have been able to ascertain it. It is of great interest that there would appear to be only four previously published cases of hydatid of the eye-ball, our case therefore makes the fifth. We understand that the diagnosis was doubtful in two out of the previous four. The fact that in three years we have met with three cases of hydatid in the eye and its neighbourhood, is so curious that we can only attribute it to one of those freaks of statistics with which all surgeons are familiar. Meanwhile we are taking steps to have the question of the frequency of this parasite in the Madras slaughter-houses watched. Captain Ross, the Health Officer of the Presidency Town, has very kindly promised to give the matter his attention. At the same time, we do not expect any very positive result, for had the

frequency of hydatid been on the up-grade, the General Hospital statistics must have shown it. A perusal of the appendix will show that they did not

for pain and swelling of left knee and inability to walk

Personal History—Patient states that about 9 PM on 12th September 1908, a rainy day,

Statement shewing the number of cases of Hydatids admitted in the General Hospital, Madras, from 1897 to date (13 years nearly)

No	Name	Age	Disease	Admitted	Discharged	REMARKS
1	Venkataraman	35	Hydatid, Spleen	26 10 1899	?	
2	Madurai	11	Ditto Liver	15 6 1901	26 6 1901	Relieved
	Ditto		Ditto ditto	26 6 1901	30 7 1901	Died
	Pannammal	53	Ditto ditto	21 4 1902	27 4 1902	Otherwise
3	Ditto		Ditto ditto	27 4 1902	28 4 1902	Died
4	Patchammall	18	Ditto Omentum	21 11 1902	25 11 1902	Otherwise
	Ditto		Ditto ditto	25-11-1902	21 12 1902	Cured
5	Perumal	30	Ditto Tibia	21-4-1903	21-8-1903	Cured
	Ditto		Ditto Liver	21 8 1903	31 8 1903	Relieved
6	Chinnammah	25	Ditto Cyst	7 3 1905	27 6 1905	Cured
7	Venkatapathy	40	Ditto Omentum	19 9 1905	13 10 1905	Otherwise
	Ditto		Ditto ditto	23 11 1905	16 2 1906	Otherwise
	Ditto		Readmitted	3 12 07	22 12-1907	Otherwise
8	Bippu	35	Ditto ditto	12 6 1906	30 8 1906	Cured
9	Mandayaraman Nair	42	Multiple readmitted, abdomen	19 10 1908	3 12 1908	Cured
10	Peters	46	Suppurating hydatids (?) of Liver Found P M	22 7 1909	22 7 1909	Died
11	Thambaswami	25	Hydatid Liver	15 4 1909	17 4 1909	Otherwise

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while returning to his house, his foot slipped and in trying to save himself he felt sudden pain in his left knee and fell down. He noticed that he could not walk after the fall.

On admission, the left knee was much swollen and painful. A transverse fracture of the left patella was detected, the fractured ends being widely separated.

The limb was kept on a McIntyre splint and evaporating lotion was applied. The swelling and pain gradually disappeared, but the broken ends were still separated on examination after a fortnight. It was, therefore, decided to wire the bone.

The Operation—The limb having been rendered aseptic, chloroform was administered and a horse-shoe shaped incision was made, and the patella exposed. The ends were found to be separated by a fair amount of blood-clot which was removed. The ends of the bone were next cleared and tracks for the wire made by a biadawl, taking care not to encroach upon the particular surface. A stout silver wire was then passed, the ends twisted and hammered into the periosteum of the upper end. The wound was then closed and the limb kept on a McIntyre splint.

Patient complained of some pain for two days after the operation, and there was slight rise of temperature up to 101° on the 2nd and 3rd days. The sutures were removed on the 14th day, when the wound had completely healed. Passive movement commenced after eight days and massage was commenced 20 days after the operation.

The patient has now a useful limb and does his usual work without inconvenience.

A CASE OF HYDRO-SALPINX.

A CASE OF TRANSVERSE FRACTURE OF THE PATELLA TREATED BY THE OPEN METHOD
No I.—Dawood Hussein, about 40 years old, was admitted into the Civil Hospital, Sholapur,

No II.—Rukhinabai, aged 30, was admitted into the Civil Hospital, Sholapur, on the 24th

SURGICAL CASES

By Y G NADGIR, L.M.S.
Agency Civil Surgeon, Sholapur

December 1908, for severe pain in the lower part of the abdomen

Personal history—She has been complaining of pain on the left side of the abdomen, back and left thigh for the last two years off and on

The pain varies in severity, sometimes being of a dull character, while at other times it becomes so severe that she has to be confined to bed. Menstruation is also accompanied by pain

The present attack is of three days' duration. It is so severe that the patient is doubled up. The pain radiates to the sacral region and left thigh. She vomited once at the beginning of the present attack. There is no obstruction to the passage of motions or urine

Temperature normal—She is a multipara. On abdominal examination nothing beyond some rigidity of recti muscles at the hypogastric region was noticed. As the patient was then in great pain, a hypodermic injection of $\frac{1}{2}$ grain of morphia was given. This relieved the acute symptoms, but a dull pain persisted. On examination per vaginam, the cervix was noticed to be pushed to the left. The uterus was also felt to that side. To the right of the uterus and distinct from it a freely moveable cystic swelling about the size of a mango was felt

On the 6th January 1909, the abdomen was opened with the usual precautions. A thin-walled cyst on the right side of abdomen was noticed. There were no adhesions. The pedicle was ligatured and the cyst removed. On replacing the pedicle in the abdomen, it was noticed that it went to the left side. The right fallopian tube and ovary were examined and found to be normal. The uterus was now easily brought to its natural position. The wound was now closed in the usual way without drainage

Progress was uneventful—The dull pain disappeared, and patient left the hospital on 28th January. Since then she has been quite free from pain

Remarks—From the physical signs one expected to find the cyst in connection with the right fallopian tube. The subjective symptoms *viz*, pain in the left side and left thigh and also sacrum, pointed that the lesion was on that side and the apparent dissimilarity between the physical signs and symptoms was easily explained by the operation

It appears that the pedicle used to get partially twisted perhaps by a loaded sigmoid. This accounts for the occasional attacks of severe pain, the patient used to have

A CASE OF CHRONIC GASTRIC ULCER TREATED BY POSTERIOR GASTRO-JEJUNOSTOMY

No III—Bhimanna Naisappa was admitted into the Civil Hospital on 7th April 1909, for pain in the abdomen and vomiting after food

The present illness is of five years' duration. It began with vomiting of blood and pain in the stomach region. For the first few years pain used to come on off and on, but for the last one year it has been continuous. He states he has lost much flesh

Present condition—Patient is weak and anæmic. Complains of pain in the epigastrium radiating to the back. It is of a dull aching nature and is continuous. Two hours after food, it is greatly aggravated. Vomiting usually takes place about 3 hours after food and is followed by some relief of pain. Bowels irregular with a tendency to constipation. No tumour is noticed

The stomach was washed out every alternate day. Washings 13 hours after food contained some mucus and undigested food. Washing out the stomach relieved the vomiting, but the pain persisted

Operation—8th May 1909. For three days previous to the operation, a daily enema was administered and the stomach washed out. A saline purgative was given on the night before operation. Stomach was washed about 3 hours before operation

Under the usual precautions a median incision was made a little to the right of the *linea alba* and the stomach exposed. It was brought out and carefully examined. A thickening was noticed near the pyloric end. During peristalsis a sort of hour-glass contraction of the stomach was observed about 2 inches from the pyloric end

The great omentum with the colon and stomach were then turned over the epigastrium and a vertical incision made in the lesser omentum, corresponding to the left border of the spine. The posterior wall of the stomach was pulled through the opening thus made. The jejunum was next sought for, and pulled out well so that no loop was left. The stomach wall and the jejunum along the anti-mesenteric border were clamped by two long-bladed forceps, the blades of which were protected by india-rubber tubing, and the remaining portion of stomach, colon and omentum were then returned into the abdominal cavity

The anastomosis was then made by two rows of continuous sutures, the outer one being of fine celluloid and included the muscle and the peritoneum, while the inner one was of catgut and brought together, the mucous membranes of the stomach and intestine

The margins of the opening in the lesser omentum were fixed to the stomach above and the jejunum below by four catgut sutures. The blood was wiped away by hot saline sponges and the wound closed in layers without drainage. Two pints of hot saline injection was given per rectum half an hour after operation

Progress—He vomited only once after operation. On the night of the operation day, he slept

well The pain in the stomach which was worrying him disappeared immediately

For 36 hours no food at all was given, only hot water sips being allowed Four saline injections per rectum were, however, given during that time For the next 36 hours rectal feeding was resorted to On the 4th day, milk and Mellin's food was given by the mouth, 4 ozs of milk and 2 teaspoonfuls of Mellin's food every 3rd hour On the 8th day rice was allowed, and on the 12th day, the patient took ordinary diet

The sutures were removed on the 14th day He had rise of temperature up to 100°C on the 4th, 5th, 6th days Another point which was noticed was retention of urine for six days after operation and urine had to be regularly drawn off

I am greatly indebted to Dr Wanless's paper on chronic gastric and duodenal ulcers, read at the last Bombay Medical Congress, for information on this important subject

TWO CASES OF PROSTATECTOMY

No IV—Raghoba Malkarjun, aged 60, was admitted into the Civil Hospital, Sholapur, on 7th April 1909, for pain and difficulty in passing urine

History—Patient states that he has been experiencing difficulty in passing urine for the last six months The pain is most marked in the perineum and the passage of urine is accompanied by a burning sensation There is no history of passage of blood or of complete retention

Per Rectum—The prostate was found to be fairly enlarged

Although the patient states that he never passed blood in the urine, urine drawn off by a catheter was found to contain many red blood corpuscles The urine analysis showed—

Specific gravity	1012
Albumen	Nil
Deposit	
Red-blood corpuscles detected	
No pus cells	

Patient was kept for a few days on urotropine, gr v, thrice daily, and the bladder washed out with warm boric lotion

Operation—Under the usual precautions a supra-pubic incision was made about 4" in length The bladder having been noticed, its wall was held on either side by two silk sutures and the bladder opened A small uric acid calculus was found and removed The mucous membrane covering the prostate was then torn through by the finger nail and the prostate easily shelled out Bleeding was controlled by hot compresses The incision in the bladder wall was then closed by fine silk sutures, leaving an opening for a drainage tube, which was left in the bladder The skin wound was then closed Further

progress was uneventful The bladder was washed with warm boric lotion on alternate days On the 9th day the drainage tube was taken out and the wound completely healed by the 22nd day

No V—Govind Krishna, aged about 70, was admitted on 8th May 1909, for pain and difficulty in passing urine

History—He is an old man Arteries atheromatous Complains of great pain and difficulty in passing urine, pain being specially referred to the perineum Per rectum the prostate was found to be large about the size of a big lime

Urine did not contain any albumen Operation was performed on the 10th May 1909 Under the usual supra-pubic incision the bladder was opened Six uric acid faceted stones were taken out In fact, on passing a finger in the bladder, almost the whole of it was filled up by stones as well as the enlarged prostate The prostate was easily enucleated and came off in two pieces Bleeding was easily controlled.

The wound was closed in the usual way leaving a drainage tube

Subsequent progress—2nd day, patient vomited four times after operation Urine blood-stained and comes through the tube

Third day, urine coming off freely Vomiting not stopped No distention Evening temperature 104° Tongue coated Hiccough was noticed towards the evening Patient got worse at night and died on the morning of 12th May 1909

Post mortem—Three more small calculi were found completely embedded in the muscular wall of the bladder These could not be detected at the time of operation Peritoneum was found to be not affected Both kidneys showed granular condition

Remarks—The number of stones found in the second case is interesting In both cases the same technique was followed and yet the second case proved fatal It appears that uræmia was the cause of death in the second case, the patient being decidedly older by about ten years than the other patient and his kidneys showed granular changes

X-RAY NOTES

By F. POWELL CONNOR, F.R.C.S.,

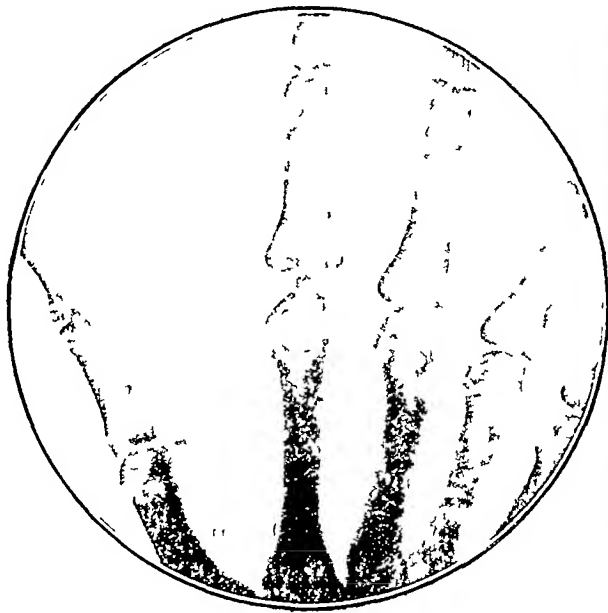
CAPT, I.M.S.,

Medical College, Calcutta

THE value of X-rays in diagnosis is well illustrated by the following case A young Hindoo, aged 20, attended the Out-Patient Department for an injury to his index finger He had been seen at another hospital, where a diagnosis of dislocation of the metacarpophalangeal

articulation had been made, and an unsuccessful attempt at reduction under chloroform carried out. When examined the joint was found to be swollen and painful, the finger was appreciably longer than its fellow, and slight grating could be felt. No displacement laterally or antero-posteriorly was observed. The hand was then examined with the fluorescent screen, and it was found that the articular surfaces of the head of the metacarpal bone and the base of the corresponding phalanx were separated by a much greater interval than was normal. No cause could be detected to account for the gap, and no other displacement, save that in the long axis of the bone, could be found, so it was decided to take a skiagram of the part.

A print of the skiagram is reproduced here. It will be seen that the central part of the joint is occupied by a round fragment of bone very



like a sesamoid bone in appearance. On closer examination, this fragment of bone is seen to have come from a small gap in the upper and inner part of the head of the metacarpal bone, just at the margin of its articulating surface.

Such an accident must occur very rarely indeed. I know of a case where a small piece of bone was similarly detached from the condyle of a femur, and was ultimately removed from the knee-joint as a loose body. But in the case of a small joint like the metacarpophalangeal it is much more difficult to understand how this could happen, and it would be a most difficult condition to diagnose without the help of a skiagram. The injury was caused in this case by a fall in the gymnasium when using the rings.

The small fragment, consisting partly of bone and partly of cartilage was removed by open operation, and it was then found that it was attached partly to the lateral ligament of the joint.

A CASE OF HYDROPHOBIA

By L. BODLEY SCOTT, B.A., M.D. (Camb.),
D.P.H. (Oxford)

GAIT, I.M.S.

THE satisfactory experience as regards palliation of symptoms which I had in this case may, perhaps, prove useful to others, and this is my reason for reporting it.

B, a Hindu girl, aged 5, was brought to Banisal Hospital on the morning of 17th June 1909 by her parents, who believed her to be suffering from hydrophobia.

H. P. C.—She and six or eight other people were bitten by a mad dog five months ago. One of the men bitten died shortly afterwards of hydrophobia. Having seen this case B's parents were quick to recognise the symptoms in her. It afterwards transpired that another of the men bitten sickened and died on the same day as B. B's illness commenced on 15th June, the chief symptoms being restlessness, sleeplessness and inability to eat or drink.

P. C.—She appears to be in an excited, frightened state of mind and clings to her father spasmodically. There are frequent irregular and indefinite movements of the arms, legs and face, not unlike choreic spasms in appearance. They are accompanied by evident pain or mental distress shown in the face and eyes by a look of terror. They are not violent in appearance.

There are no evident spasms of the larynx or mouth. She refuses to eat or drink. When offered water, she turns away from it and stubbornly refuses to touch it, but does not display any horror at the sight of it. She appears unwilling to use her voice but sometime speaks and is not hoarse.

Progress and treatment.—At 8-30 A.M. $\frac{1}{2}$ gr morph hydrochlor was injected hypodermically. At 10-30 $\frac{1}{2}$ gr more was given.

The effect of these injections appeared to be nil, but the child had evidently experienced some relief from them for she soon begged frantically for another, pointing to spot on her arm where the needle had been inserted.

At 11-30 another injection of $\frac{1}{2}$ gr was given. The large amount of $\frac{1}{2}$ gr morphia had now been given within three hours but there was still no visible effect in quieting the spasms which were becoming more distressing to the patient.

I then thought of trying the combined effect of scopolamine and morphia and at 12-15 $\frac{1}{100}$ gr of hyoscine hydrobromide was injected, without any further dose of morphia. The effect was excellent. Within 20 minutes the girl fell into a deep sleep which lasted till she died at 7 P.M.

The spasms completely stopped as soon as she fell asleep.

The condition in the evening, an hour before death, was one of unconsciousness with failing pulse and respiration, dilated pupils and absence of all spasmodic movement.

Indian Medical Gazette.

JANUARY

ANNUS MEDICUS

THE year just drawn to a close will, we venture to hope, be looked back on as one of the most important, up to the present time, in the whole history of medicine in India. Much valuable research in many different lines has been going steadily on, and some real advances in our knowledge have been made. The fields presented by sanitary science, bacteriology, medicine, physiology, rabies, operative surgery, etc., have all been taken advantage of and good progress has been recorded.

The year opened auspiciously with the Bombay Medical Congress, the official published transactions of which present a record of which the medical profession of India may justly be proud. Every branch of the medical world except, of course, the discontented, jealous grumblers—whom nothing would please—has accepted the Bombay Congress as an unqualified success and has spoken in the highest terms of the work done by the Congress and the good likely to accrue therefrom. The credit for the idea of holding a Medical Congress belongs to His Excellency the Hon'ble Sir George Sydenham Clarke, Governor of Bombay, and he was very happy in the selection of the most opportune time for such a gathering. The stimulus to research and earnest enquiry provided by the first Indian Medical Congress and the outbreak of plague had borne fruit and this fruit "in varying stages of maturity has been awaiting gathering and sifting, processes which can only be satisfactorily effected by minute comparisons, the careful interchange of independent views and the modifying influence on too rapid enthusiasm of a stern application of an inductive and deductive logic. The necessity of some machine for combining these forces had been becoming increasingly apparent year by year, and experience had shown that the only machine capable of producing the desired effect was a Congress of serious searchers after the same truths in different and widely scattered parts of the world." No more valuable testimony as to the success that attended the efforts of those who originated, planned and took part in the Congress could be adduced than that furnished by Professor Musgrave in his report to the

Government of the Philippine Islands—"In scope, material presented, and in attendance this was surely the most successful Congress dealing entirely with problems of tropical medicine which has ever been held."

It would be beyond the scope of this article to go into any detail with regard to the many lessons to be learned from the work of the Congress, an admirable summary by the Editor of the transactions will be found in the volume recently given to the world. We may briefly refer, however, to the great scourges of tropical countries, cholera, dysentery, typhoid and malaria. Short as the time has been that has elapsed since the Congress already further advances have been made. Major Rogers' hypertonic saline injections in the treatment of cholera is proving a most valuable remedy and a certain means of tiding over the collapse stage of the disease. In our November issue we published a detailed statement of this method and of some of the results obtained, a perusal of this paper, which will well repay the reader, cannot fail to impress on the profession that a very real advance has been achieved in the treatment of this fatal malady. Captain Foister's anti-dysenteric vaccine has been further put to the test and the paper on jail dysentery by Captain Gillitt goes far to substantiate all claims made by Captain Foister with regard to the value of vaccine therapy by means of cultures prepared from Shiga's bacillus. There would now appear to be abundant proof of the spread of dysentery by means of the convalescing human being acting as a "carrier," and, from the evidence brought forward by Captain Gillitt, it is extremely probable that the danger of infection in this way can be greatly diminished, if not entirely avoided, by treatment with antidysenteric vaccine.

Regarding typhoid the value of anti-typhoid vaccination, both as a preventative and as an agent for mitigating the severity of attacks, is now generally conceded, thus affording, at last, complete confirmation of the views Wright promulgated over ten years ago, and which were the subject of much controversy and considerable acrimony.

But it is perhaps with regard to the awful scourge, malaria, that the portents most favourably augur. The recent gathering of a Malarial Conference at Simla, consisting of experts and Sanitary advisers from every province in India may be directly traced to the spirited discussions on malarial prevention which took up a large

part of the time of the Congress Those discussions and the terrible outbreak of malaria in epidemic form last year in the Punjab and United Provinces brought matters to a head and decided the Government of India to replace the isolated efforts of individual local Governments and Municipal bodies by a co-ordinated machinery for a combined and extensive enquiry embracing the whole subject of malaria in all its branches

The urgent need for such a research no thinking man can deny many years have passed since Laveran's great discovery and Ross's completion of the work on the cause and transmission of malaria were given to the world, much has been written with regard to prophylaxis and treatment, large sums have been spent in the carrying out of the many ideas that have been put forward, some with considerable show of reason, as methods of mitigating the death-roll from malaria, yet, except in certain particularly favourable areas, the results have been very disappointing, the death-rate is still enormous and the eradication of malaria seemingly as far away as ever We look forward most hopefully to the future, with a body of trained men devoting their brains, time and energy to the study of the problems involved, we may confidently expect results and progress that could only have been attained by lucky accidents under the old system, where an odd man was occasionally and in a haphazard fashion placed on special duty to study some particularly glaring outbreak

Now we are to have a continuity of research going on at all seasons of the year in each province by specially selected officers who have been chosen for their intimate knowledge of the subject, and the abilities they have evinced for research and the power of accurate observation We believe that the medical profession will not be found wanting and that, if given a fair opportunity, it will be able completely to satisfy the demands made by the call We further believe that a solution of the malaria problem will be found and that, with a close co-operation of the people, the practical application of the means evolved will become feasible and the mortality and incidence of malaria largely reduced

During the year under review there have been published a series of papers of very great importance Early in the year Christophers and Bentley's memoir on Blackwater fever

appeared, while these observers were unable absolutely to define the actual cause, they have given us a most valuable addition to the literature of the subject, and an exhaustive, painstaking and careful study of the condition in its clinical and pathological aspects The elucidation of the causation of Blackwater fever, we believe is a problem more suited to the serologist than the clinician and one that may be closely akin to the condition of anaphylaxis The work at present going on on the anti-toxic and anti-hæmolytic action of lipoids is suggestive in connection with the liver complications that often accompany an attack of Blackwater fever lipoids, such as cholesterol, oxysterol, are formed in the liver to a very large extent

In the field of Sanitary Science Major Chemesha has produced a monumental piece of research on the bacteriological examination of water supplies, more particularly with reference to the Madras Presidency It is the first time any big effort in this direction has been made in the East and the importance of the work can hardly be exaggerated from a public health standpoint

The painstaking investigation by Captain Lloyd, an experienced and skilled biologist, on the races of Indian rats, which was reviewed in our columns some months ago, forms an important contribution to our knowledge and is particularly interesting in view of the acknowledged dissemination of plague by means of rat-fleas

The question of the differentiation of dengue and seven-day fever seems as far from final settlement as ever all one can say is, if we accept the two conditions as separate entities, that the dengue of those who believe in the separate existence of a seven-day fever would seem to be absolutely disappearing *pari passu* with the spread of the knowledge of the so-called new disease

Several papers on the subject have been published during the year and the disease has now been found to have extended its borders from Calcutta and the sea-coast to the whole tropical and sub-tropical countries of the world The view that the causative agency of the condition is ultra-microscopic seems to have been fairly well established by the Philippine and Austrian experiments Epidemic dropsy or as some think, Beri-beri has been present in epidemic form in Calcutta during the last half of the year It has been exceedingly preva-

lent amongst the native population and has claimed many victims. No scientific investigation on it has so far been made, at least, nothing of that nature has been published. Manifold and diverse are the views that are held regarding its etiology, the majority of which would probably not stand for a day in the light of knowledge based on careful and accurate observation. We are sorry to say that such knowledge so based is utterly lacking, and that we have not made a single step forward during the year in elucidating this important problem. It seems a pity that such a favourable opportunity for original investigation should have been neglected by the profession in Calcutta, and particularly by the indigenous investigator who has come more in touch with the disease than the European.

The treatment of leptosy would appear, in the light of the important results published by Deyche and Williams, to have made rapid strides. We hope that the investigations now being carried out in India and elsewhere may prove successful in affording complete substantiation of the efficacy of the method, and that the stage will soon be reached when this revolting disease will no longer be looked upon as incurable. So far the results are decidedly promising. Plague is diminishing and there are good grounds for believing that the worst of the epidemic is over, although there has been a severe recrudescence in Nagpur. The fight against plague has been long and, like that against malaria, has largely resolved itself into one of combating the prejudices of the people. With a population to deal with, such as is to be found in European countries, epidemics of plague or malaria would have been got under control in a comparatively short time, but, it is a very different matter in India where every precaution taken, every word of advice given, every line of treatment adopted, is regarded with suspicion by the community at large or made the means of a virulent attack against the authorities—medical or otherwise—by unscrupulous agitators. The real problem to be solved before any great advance in preventive medicine can be made is how best to obtain the co-operation of the people, and how best to cultivate the growth of a healthy public opinion that will listen to none of the false statements propagated by political agitators for ulterior purposes or by the ignorant through mere superstitious fear.

The much-needed Medical Registration Act for India, which is urgently demanded in the interests of the independent practitioner and particularly in the interests of the public, is still being discussed. Steps have been taken in Bombay and certain conclusions arrived at, which we publish in another column.

With regard to books published during the year by members of the profession in India, mention must be made of—Major James' Malarial Fevers, and Small-Pox and Vaccination in British India, by the same author. The Poisonous Snakes of India, by Major F Wall, I.M.S. Human Speech, by Surg-Major N C MacNamara, I.M.S. Queries at the Mess Table, by Lieutenant-Colonel J Duke, I.M.S. The Races of Indian Rats, by Captain Lloyd, I.M.S. Notes on applied Sanitation in Japan, by Lieutenant-Colonel J Smith, I.M.S. Observations of Rabies, Memoir No 36, by Major Lamb and Captain McKendrick, I.M.S. and a book by Dr Newell on Blackwater Fever. Many other valuable reports and studies have appeared, such as Major Clemesha's Bacteriology of drinking water supplies in Tropical Climates, and the Reports and Bulletins of the Pasteur Institutes at Kasauli and Conoor, etc.

As regards service matters, we have had to deal with many questions. The year 1909 can only be looked on as one of considerable anxiety to those who have the good of the service and the advancement of medical knowledge at heart. The Indian Medical Service can justly claim to have been well in the fore-front in every discovery made in the realms of tropical medicine and surgery since India became known to medical science. The effects of the recent correspondence and the proposed changes in the service will we fear, have a decided influence on the outlook of medical knowledge in tropical countries.

In conclusion, we have to thank our readers and those who have contributed for their continued interest and support. Our special thanks are due to Lieutenant-Colonel D G Crawford, I.M.S., for the great assistance he has given us and for his many valuable articles on the history of the Indian Medical Service.

THE BACTERIOLOGICAL EXAMINATION OF WATER SUPPLIES

The work carried out by Major Clemesha, I.M.S., and his assistants at the King Institute of

Preventive Medicine, Madras, during the year 1908, forms an important contribution to our knowledge of the difficult questions connected with the value of bacteriological tests as a means of estimating the suitability of water for potable purposes.

Major Clemesha's work, in the first place, contains a definite statement as to the value of the "bile-salt" test of faecal contamination. MacConkey asserts that of all known microbes, only those capable of living in the human or animal intestine can flourish in media containing bile-salts when kept at a suitable temperature. The presence of bile-salts inhibits the development of other species. Therefore, if the water to be tested is added to such a medium, and if the mixture shows bacterial growth after 24 hours it is concluded that the water has been subjected to faecal contamination either of men or animals. Here is a definite and straightforward test of the purity of a water supply. The test appears to make no undue demands in time or materials in carrying it out, and it appears, therefore, advisable that bacteriological reports on water supplies should contain a statement as to the presence or absence of "bile-salt media microbes."

But after making this admission, the question still remains as to exactly how much value must be ascribed to the test. Major Clemesha has made a detailed study of the microbes of faecal origin, using their powers of fermenting different kinds of sugars as a way of distinguishing between one species and another. The first question that arises is how far it is proved that MacConkey's test is applicable to India. In MacConkey's experience all microbes that could live in bile-salt media could be regarded as faecal microbes. Is this also true of microbes found in Indian water supplies? Many of the rarer microbes described by Major Clemesha as faecal organisms appear to have somewhat shadowy claims to this distinction. Admitting that they have occasionally been found in faecal matter, it is a fact that they have also been found in the outside world, and their actual nidus or breeding place remains undetermined. A microbe whose normal habitat is water or dirty water may be swallowed and afterwards detected in faecal matter, and the observation proves nothing more than that it is able to pass through the intestine without being destroyed. If this possibility is admitted, and it is difficult to see how it can be denied, it would be some-

what rash to use a rare and not well-known microbe as a criterion for condemning a public water supply.*

Major Clemesha seeks to avoid this error with great ingenuity. It is obvious that *ceteris paribus*, recent pollution of water with faecal matter is more objectionable than pollution that gets into the water a long time before the latter comes into use. For instance, supposing a lake is fed by a small stream. Faecal pollution of the stream would make its water dangerous from the sanitary standpoint. But after the polluted water of the stream has reached the lake, several weeks perhaps may elapse before it reaches the outfall. Dangerous pathogenic organisms are certain to die out during this interval. The outfall water, when bacteriologically tested, may show faecal contamination, but it is faecal contamination of long antecedent date and therefore in all probability not dangerous to health. Can the bacteriological test distinguish between these two kinds of pollution?

Major Clemesha's position is that with recent pollution it is likely that faecal microbes of several species will be present. With long antecedent pollution on the other hand, only the more resistant microbes will have survived. It is therefore necessary to determine the actual species of microbes that develop in the bile-salt media test, and also to find out which of these are resistant and which rapidly die out after leaving the shelter of the human or animal intestine.

It is very obvious on reading Major Clemesha's report that he and his able assistants have used the most praiseworthy care in applying every known test in distinguishing between the different species of often closely allied microorganisms that are found in faecal matter. These tests involve observation of the power that different microbes possess of fermenting various rare and expensive sugars such as, inosite, dulcitol, &c. One is apt to wonder whether there is any limit to the process, whether the discovery of other rare and more expensive sugars might not result in further splitting up of Clemesha's "true coli" into still more separate species. The question arises whether a capacity for fermenting a rare sugar that the microbe never meets with in nature is an adequate criterion for distinguishing a species, or, if not, whether there is

* All Major Clemesha's faecal organisms have been found in faeces of man or animals by himself.

sufficient evidence that a variety of a microbe having such power is necessarily constant. We know that microbes may lose pathogenic powers and other characters. Are we certain that they may not lose or acquire a capacity for fermenting a particular kind of sugar? These remarks are not made by way of disparaging Major Clemesha's work, but rather with the view of suggesting the hope that his work will be continued and extended.

Major Clemesha says that "In time it is hoped to be able to assign a relative value, as an indicator of pollution, to each of these different organisms." When every known faecal organism has been accurately described and studied, and its occurrence, both in faeces and water, has been carefully noted, we may hope to be in a far better position than we are at present to assign a true value to a bacteriological test of a water supply. We consider that a further report by Major Clemesha giving such details in more or less tabular form would be of great value. For instance, on page 77 of his report, Major Clemesha describes his "Bacillus No. 9" as follows — "This organism very much resembles acidilactici, with the exception that it gives Voges and Proskauer's reaction. It has only been isolated once from faeces, namely, from cowdung. In the month of February it was found to be very common in the water supplies of Vellore and Gudiyattam and later in a few others. The prevalence of this organism in several places tends to show that it is a separate species." It is obvious that further experience of the natural history of this microbe is required before we can be in a position to estimate whether or not its occurrence in a water supply is a proof of faecal contamination. We confidently hope that further reports from the staff of the King Institute of Preventive Medicine will add to our knowledge in this direction. It is a difficult question in which progress must necessarily be slow. We have no certainty that tests most relied on nowadays will be those relied on in the future. For instance, organisms capable of reproducing in the intestine must be capable of anaerobic life. Possibly in the future some study of the capacity for living under anaerobic conditions may be considered necessary before describing organisms as of faecal origin.

Chapters VIII and IX of Major Clemesha's report are devoted to a description of experiments on the capacity of faecal organisms of resisting sunlight. Major Clemesha states that

"At the commencement of this subject a few preliminary experiments were undertaken making use of laboratory cultures of organisms. These were mixed with water and put in the sun. The results were very irregular, and demonstrated this important point, that if the investigation was to be of any practical value whatever, we must use bacilli as we find them in nature, and avoid laboratory cultures." It is not at all clear how such experiments, having irregular results, could demonstrate an important point. It would seem to be obvious that if one wishes to find out how much exposure to sunlight can destroy a particular kind of microbe the way to find out is to work with a pure culture. If the results are irregular, either the microbe is irregular in its capacity of resisting sunlight, or there must be some unexplained experimental difficulty or defect. It is to be regretted that Major Clemesha did not apparently attempt to find out what this defect was. Other observers have experimented on the resistance of microbes in pure cultures to sunlight, and have obtained regular results. It is not clear why this should not have been accomplished in the present case. Instead Major Clemesha preferred, as he says, to imitate natural conditions by making mixtures of human faeces or cowdung with water and exposing them in dishes to the sunlight. The first experiment he describes shows the necessary difficulties of interpreting the results obtained. Before exposure to sunlight, tests of the mixture showed that *Bacillus coli communis* was present. After exposure to sunlight, coli was no longer detected, but a variety of other microbes were found to be present, microbes often closely allied to coli, but differing to a certain extent in their capacity of fermenting sugars. Supposing this experiment had been carried out with the object of proving that exposure to sunlight causes a change of coli into certain allied species of bacilli, it might well be objected that there was no adequate proof that these other species were not present in the original mixture. Conversely, if we are asked to believe that the coli originally present were destroyed and not transformed, we may ask for some better method of proving its absence than that employed. Major Clemesha's interpretation of his results may be correct, and probably is so, but we may fairly demand experiments that do not leave us with possible alternative explanations. It may be alleged that such experiments have the advantage over

experiments with pure cultures in that they imitate more closely natural conditions. But if natural conditions in this sense mean keeping in undeterminable factors, that might otherwise be kept out, a difficulty in interpretation must necessarily ensue. The essence of experimentation is to keep out variable and unknown factors however natural they may be.

Such a criticism cannot be brought against Major Clemesha's observations on the Red Hills Lake water, regarded as a record of the organisms to be found at different times in a lake that is subject to occasional contamination from water flowing into it after rainfall. It would appear from these observations that the self-purification of the water of this lake takes place more rapidly in the surface layers than in the depth. But with regard to the interpretation of the meaning of the different varieties of faecal microbes isolated from its water, it is obvious that we stand in need of definite experiments as to the power of resistance that such microbes have, not only to sunlight, but also to the effect of starvation, if keeping in pure water may be so described, and to other hostile influences.

As an example of the difficulty of interpreting the results obtained we may quote from page 78 of Major Clemesha's report—"Lactis aerogenes. This organism is an extremely common one, under certain conditions, in water-supplies. It is extraordinary that it is not more commonly met with in the faeces of men and animals, in these it is rather rare on the whole." The results obtained with Red Hill Lake water give rise to a suspicion that it may be a microbe capable of living in water, under suitable conditions. In Chester's Manual of determinative bacteriology the habitat of this microbe is stated to be milk, faeces, air, water, etc., a sufficiently wide domain. Major Clemesha's work appears in this respect to throw doubt on MacConkey's assumption that lactis aerogenes is a true "faecal" microbe.

We consider that Major Clemesha's work is extremely suggestive. Further work on the same lines may lead to a great improvement in the bacteriological tests of the purity of water. The first desideratum would appear to be a careful cataloguing of all microbes that have ever been suspected to be faecal including records of where they have been met with, information as to whether they can reproduce in the animal intestine, and so merit being branded as faecal, and, as suggested by Major Clemesha's work,

information regarding each species, as to its power of resisting sunlight or other hostile influence, so that ultimately we may hope to be able to state whether contamination is of recent or not of recent origin.

BURMA BRANCH, BRITISH MEDICAL ASSOCIATION

THE Annual Meeting of the Burma Branch British Medical Association will be held at the New General Hospital, Rangoon, during the first week in February, commencing on Wednesday, 2nd February, and ending on Saturday, the 5th February, 1910.

Arrangements will be made by the Managing Committee to put up members coming from the Districts.

It is earnestly requested that all who possibly can will attend this annual meeting, as it is hoped to make it a success and have it annually hereafter. The importance of such a meeting to the Medical Profession in Burma cannot be over-estimated, and it is therefore hoped that every member will try his utmost to come.

PROGRAMME

Wednesday, 2nd February, at 9-30 P.M. Address by the President, followed by inspection of Museum.

Thursday, 3rd February, at 5 P.M.

Medical Section.

Subject—Spread of Tuberculosis in Burma, to be opened by the President. Members intending reading papers on some point in connection with Tuberculosis are asked to communicate with the Honorary Secretary and limit the length of their papers to ten minutes, informing him of the subject of their paper.

The Museum will be open from 9 P.M. to 6 P.M. to all Medical Men, of all grades down to the Hospital Assistant Class, who are cordially invited to visit the Museum.

Friday, 4th February, at 8-15 P.M.

Annual Dinner

During this day it is proposed to arrange visits to places of interest to the Association.

Saturday, 5th February, 5 to 8 P.M.

Surgical Section

Subject—Compound Depressed Fractures of the skull. To be opened by Major Dyer, F.R.C.S. Papers from Members on this subject should be limited to ten minutes.

Members intending to read a paper on some point in connection with this subject are asked to communicate with the Honorary Secretary, mentioning the particular point they wish to bring forward in their paper, so as to avoid overlapping

COMMITTEE OF MANAGEMENT

Major Bailly	... <i>Chairman</i>
Dr Pedley	<i>Dinner Secretary</i>
Major Rost	<i>General Secretary</i>

GENERAL HOSPITAL RANGOON

Museum

Major Rost	Foods and Drugs
Capt Williams	Instruments
Capt Whitmore	Pathology

It is hoped that Members will communicate with the Museum Committee any specimens, photos, microscopic slides, drawings, plans, or anything of interest they have to show, and despatch these so that they reach Rangoon at least one week before the meeting

A full description must accompany each specimen

Current Literature

IS BLACKWATER FEVER THE EXPRESSION OF ANAPHYLAXIS TO A MALARIAL PLASMODIUM?

We have referred more than once in these columns to the condition of anaphylaxis or supersensitiveness—a condition brought about by the introduction into the circulation of a foreign albumen in an animal that has already been injected with that albumen. This knowledge has naturally directed the attention of pathologists to the question of the possible rôle anaphylaxis may play in the causation of certain obscure diseases. Thus eclampsia is said to be more satisfactorily explained on this basis than on any other. It would only require the solution of a certain amount of foetal syncytium in the maternal blood, followed after ten or more days by the solution of another small amount, to set up anaphylaxis if such were possible under these conditions. If the doses of foetal proteins followed each other more closely then immunisation would result, which perhaps is the rule in pregnant women and hence the rarity of puerperal eclampsia.

Cleland* now extends this idea to the part anaphylaxis may play in the causation of blackwater fever. In malaria we have living masses of protoplasm free in the plasma or parasitic in

the red blood corpuscles. It must happen that, at times naturally, and after the administration of quinine frequently, a greater or a smaller number of the young merozoites die. This must lead to the presence in the plasma of a (dead) protein foreign to it, which is exactly the condition that leads to the production of supersensitiveness. Anaphylaxis is brought about by the injection, after a certain interval, of another dose of the original protein, in blackwater fever it may be that exactly an analogous event takes place, that a number of the young forms of the malarial parasite die naturally or are killed by the administration of quinine, that their protein, after solution in the plasma, sets going the processes that eventuate in the formation of specific precepsin, that after an interval sufficiently long for anaphylaxis to be set up, a second batch likewise die and go into solution in the plasma, and that anaphylaxis in the form of blackwater fever is the resultant condition. This view is suggestive but is open to serious criticism. Anaphylaxis is very little understood, but hæmolysis is not one of its signs. It occurs even when the amount of protein injected in the first, or sensitising, dose is excessively small, and though the quantity required for the fatal second dose is somewhat larger, yet it is astonishingly small. To accept anaphylaxis as a cause of blackwater fever, we should have to assume that it is only in certain malarial attacks that solution of the plasmodium takes place, and that, therefore, the malarial parasite is able to get out of the body in all cases of recovery from malarial fever without breaking down at all, except under certain unknown (and strictly local circumstances) when blackwater fever would follow a second or subsequent attack of malaria. Or, we might ask why does not blackwater fever occur after every second attack so long as there is an interval of ten days or more from the first attack? also why does blackwater fever only occur in certain localities and even the most virulent attacks in other districts have no power of causing blackwater fever? Further, blackwater fever and anaphylaxis do not in the least resemble one another, while, on the other hand, there is a good deal of similarity between eclampsia and anaphylaxis. Until the subject of anaphylaxis is more thoroughly understood nothing definite can be stated, but we think that the facts are against this view of the causation of blackwater fever.

THE SURGICAL TREATMENT OF LOCOMOTOR ATAXIA

DENSLOW (L N), *Annals of Surg*, 1909, Vol XLIX, p 737. This writer believes that the dystrophic changes occurring in the neurones of the posterior roots and their connections in tabes are the result of continuous sensory impulses conveyed from some peripheral point to the sensory roots in the cord, and which

* *The Journal of Tropical Medicine and Hygiene*, October 15th, 1909

eventually produce exhaustion of the central nerve substance. In the great majority of cases he finds the initial irritation is in the urethra, bladder and rectum of both sexes, and in the uterus and appendages of the female. By removing the causal irritation, *i.e.*, by locally freeing the urethra and treating uethroscopically any erosions or sensitive conditions by the use of mild antiseptic and astringent applications, he has obtained recovery from such grave conditions as ataxia, incontinence of urine and faeces, anaesthesia and hyperaesthesia, etc. He does not claim that any permanent changes in the spinal cord or other portions of the nervous system can be repaired, but that where a train of symptoms is due to the continued irritation of such lesions removal of the irritation is capable of permanently relieving the train of symptoms. There is probably always a considerable zone of functional irritability beyond the actual pathological change hence the possibility of considerable improvement. Records of 16 cases are given in all of which the cure of the urethral lesions practically secured for the patient relief from his troubles to an extent which hardly seems credible. The writer is careful to add a word of warning against careless manipulations, especially when dealing with the deep urethra and bladder, as "cases of tabes have a special sensibility to the slightest access of irritation at this point,"—and the "line between relieving and producing still more irritation is a narrow one." He also insists upon the importance of a preliminary urinary analysis. He never uses silver nitrate as a local application to the urethra.

FIBROLYSIN, A REMEDY FOR OBESITY

RIEDEL (A), *Munch med Wochenschrift*, 13th July 1909. In the course of treating various surgical lesions by means of injections of fibrolysin, Riedel has made the interesting discovery that this drug not only has a beneficial effect on obesity, but in a sense may be said to be curative of it. In the course of his paper he gives details of two cases. Both patients suffered from well-marked obesity. The injection of a 23 cc ampulla of fibrolysin every other day had the effect of reducing the weight at the rate of two pounds a week, until by the end of four months a total of 26 pounds had been lost. There was a corresponding improvement mentally as well as physically. One of the cases has now been under observation for two years and there has been no further increase in weight. He positively asserts that there was no untoward effect whatsoever nor did he observe any albuminuria. Its great simplicity places it within the range of every practitioner, and the need for special measures directed towards diet, etc., is done away with. Further physiological and clinical investigation is of course necessary before we can say whether or not in certain cases the

lowering effect of the drug must be used with caution —(*The Medical Chronicle Extracts*)

THE POSITION OF THE STOMACH

By radioscopic examination after the administration of bismuth subnitrate, Dr K. Faber has made some interesting observations on the position of the stomach in the normal subject and in cases of gastropotosis. By examining a number of young subjects of both sexes in good health he finds that in males the stomach has the form of a vertical bag or sack, the lower end of which is bent upwards. It lies a little to the left of the middle line and the lower end crosses this line to end in the lower right half of the epigastrium. The greater curvature passes almost vertically down to 1 to 3 cm above the umbilicus, where it crosses the middle line but the extent of this vertical portion forms the chief variation in different subjects. In tall thin males it may extend to the umbilicus or even below, and in females it is much lower than in males. Among 70 female subjects examined, in only two or three cases did the greater curvature lie altogether above the umbilicus. In cases of gastropotosis the chief characteristic consists in the length of this descending vertical portion of the stomach which may measure as much as 30 cm, whereas normally it should not exceed about 25 cm. Dr Faber considers that in women a stomach is to be regarded as abnormal when the lesser curvature reaches to the level of, or below the umbilicus. In man a ptosis of that extent is very rare. On the other hand he finds that clinically a very considerable amount of gastropotosis may be present, especially in women, without giving rise to symptoms. He thinks that when symptoms do arise they are due to an accompanying gastritis, or to a loss in neuro-muscular tone. In such cases the condition is naturally aggravated by the ptosis of the organ causing increased difficulty in the evacuation of the stomach contents —(*The Hospital*)

THE PATHOGENESIS OF TYPHOID FEVER

THE typhoid bacillus belongs to that group of organisms which produce their constitutional effect through poisons which are liberated only when the bacteria are disintegrated. The animal body seems to have little power of producing antitoxins for these "endotoxins." The chief means of defence against typhoid bacilli consists in the power of the blood serum to cause bacteriolysis, and, as by this bacteriolysis the endotoxins are liberated but not neutralised, it follows that the destruction of a large number of typhoid bacilli in the blood may not always be an unmixed blessing.

Thus, for instance, if a large dose of typhoid bacilli be injected into an animal that has been

immunised to this organism, and into another non-immunised animal an equally large dose be injected, it may happen that the immune animal will die in a few hours, while the control will live much longer. The reason for this is that the immune animal has acquired the power of destroying typhoid bacilli, and by producing rapid disintegration of the injected organisms it causes these endotoxins to be liberated in a single large dose, against which the animal has no defence. Such an animal may die from bacterial intoxication when cultures show that the blood is entirely free from living bacilli, while, at the same time, the control may live much longer with abundant living bacilli in the blood.

As in typhoid fever the bacilli are present almost constantly in the blood, it is evident that this matter of the liberation of endotoxins by bacteria destroyed within the blood must be of much importance in the clinical manifestations of the disease. So that to produce typhoid fever the bacilli must grow in a situation where they have free access to the blood. Entering the blood they cause the clinical condition of typhoid fever by becoming disintegrated and liberating their endotoxins.

From studies of the bacteriology of the blood in typhoid, and experimental investigations on animals, Coleman and Buxton have developed an interesting and plausible theory of the pathogenesis of the disease. They believe that the atrium of the infection is in the lymphatic structure of the intestinal wall, from here the bacilli reach the lymphatic system and the spleen, where they seem able to grow, being here in a measure protected from the bactericidal power of the blood. After they have grown to a sufficient amount, corresponding to the period of incubation, they overflow into the blood, where, the bacilli undergoing bacteriolysis, the endotoxins are set free and cause the symptoms of the disease. Subsidence of the fever seems to depend on the cessation of the discharge of bacilli from the lymph glands into the blood, probably because the immunity processes have succeeded in checking the multiplication of the bacilli in the lymphatic tissues. It is possible that those cases in which an intermittent temperature persists after the original febrile movement has subsided may be due to irregular discharge of bacilli from some lymphatic organ, in which the bacilli still continue to grow. Relapses probably arise in this way, for it is known that the spleen sometimes remains large after the subsidence of fever in patients, who subsequently relapse, and it may be that this enlargement indicates the local persistence of the infection, which may later flare up as the immunity reaction wanes. That the resistance to the typhoid resistance does wane, especially as regards local rather than systemic resistance, is shown by the frequency with which, after recovery from systemic infection, local infections appear in the form of abscesses, cholecystitis, etc. (*Journal of the Am Med Assoc*)

TREATMENT OF SPASTIC PARALYSIS BY SECTION OF THE POSTERIOR NERVE ROOTS

FOERSTER presents a monograph on the causes of spastic paralysis and effects of operative treatment by resection of three or four of the posterior nerve roots. He reports with illustrations two cases of congenital spastic paralysis of both legs with slight paresis of the arms, a case of tuberculous cervical spondylitis and another of multiple sclerosis, both with total spastic paraplegia of the legs and one of right hemiplegia, in all of which he tried this method of operative relief. In the first three cases the spastic contraction of the muscles was materially improved or entirely remedied. The results were pronounced even directly after the operation, the exaggerated reflexes being reduced to normal with cessation of reflex movements associated with voluntary movements. By severing the roots it was seen that the corticogenic excitability of the different muscles was still retained, so that volitional movements then became possible. After the operation the patients must be trained to use their limbs properly and they must be controlled with orthopedic appliances to prevent the limb from assuming abnormal positions until volitional control is finally gained.

The last two cases are instructive from several points of view, they show among other things that this method of operative treatment is less promising for the arms than for the legs, while it offers an encouraging outlook for severe spastic paralysis of the legs of either spinal or cerebral origin.

For the present he operates only in cases in which there is nothing to lose, although he does not forget that in exceptional cases Little's disease has been known to improve spontaneously. Compression myelitis, multiple sclerosis, etc., also justify this measure, but he does not advise it in cases of mere hemiplegia, except for a hemiplegic arm with pronounced spasmodic contraction and reflex co-movements, especially in cases of infantile hemiplegia, in which the spastic trouble is pronounced, while the paretic is comparatively slight. Such cases are particularly promising.

No sensory disturbances are noted in his cases after the operation nor decided ataxia, except that in one instance a pre-existing ataxia persisted to some extent. The technique does not differ from any laminectomy, but is best done in two sittings.

He commends the intervention as a great onward stride in the treatment of spastic paralysis. It does not restore normal conditions but it is surprising to behold how the theoretical premises are confirmed by the effect of the operation. It is remarkable to see how a child previously entirely helpless, unable to take a step, can be put on its feet and enabled to walk after a fashion, without any direct surgical intervention on the legs. The success attained is

due in a large measure to Foerster's patience and perseverance in training the patients afterwards to use their limbs. In one case a secondary local operation for contracture was necessary. The illustrations "before and after" show the previously helpless child now walking upstairs (*Journal of Amer Med Assoc*, extracted from *Mitt aus den Grenzget der med und Chir Jena*)

THE POPULARITY OF THE INDIAN MEDICAL SERVICE

IN a recent leading article the *Pioneer* thinks that the popularity of the Indian Medical Service is steadily on the wane, and that candidates are not forthcoming in anything like the numbers that were formerly recorded. At the last examination for commissions there were 48 competitors for 21 vacancies, a proportion of something over 2 to 1, whereas not so many years ago the figures were 7 or 8 to 1. At the same time there is far more desire shown to enter the Royal Army Medical Corps, for at the same examination 54 candidates competed for 20 commissions, the old proportion being at the rate of about 3 competitors for 2 vacancies.

The proposals of the Secretary of State to introduce independent practitioners into India and to allot to them some of the professional appointments and civil surgeoncies has been adversely criticised in the service papers at home, and this suggested introduction has doubtless had its effect upon the students in the various colleges. They see that a career in India no longer offers the chance of lucrative practice apart from professional distinction, and that there will be few compensations in the future for continuous service in a tropical climate. On the other hand, the Royal Army Medical Corps is in high favour. At a recent Prize Distribution of the Royal Army Medical College, Sir Frederick Treves remarked that the probationers were entering the service at a very auspicious moment. Addressing them he said "you know, perhaps, that the Army Medical Department has passed through a period of low water. You enter it on the crest of the flood tide, and on that tide you will be carried to what, I hope, will be fortune."

I do not hesitate to say that there is no branch in the service better paid than the Army Medical Service." Sir Frederick Treves linked the two services together when dwelling on the opportunities afforded for advancing and elaborating sanitary sciences, and for investigations into tropical diseases. The Government of India have yet to make a final pronouncement in respect of independent practitioners, and they should note the change that has taken place in the matter of competition for the Indian Medical Service in this country (*Lancet*, Oct 23rd, 1909).

DIAGNOSIS OF SYPHILIS

THE *Hospital* publishes the following valuable extract —

Attention is drawn in the *Journal of Clinical Research* to a laboratory test for syphilis which is said to be almost infallible, and of far more value than the Wassermann reaction. This consists in obtaining gland juice for films, by gland puncture with a fine aspirating needle, and direct staining for *Spirochaeta pallida* in the films thus obtained. A small syringe, such as is used for hypodermic injection, is sterilised by boiling, the skin over the gland is shaved, washed, and prepared with ether, and is then stretched tightly over the gland, whilst the needle is plunged obliquely in to the latter. Strong aspiration is employed, and the needle point is moved about inside the gland. The small amount of fluid thus drawn up into the needle is then expelled on to a glass slide, and smeared out onto a film. Without fixing it may be stained at once by Giemsa's method. When dry the film is ready for examination under an oil immersion lens, and if *Spirochaeta pallida* is found, the lesion is syphilitic even if no definite secondaries have appeared. It is claimed by Preis that syphilis can be thus confirmed or excluded in the stage between the appearance of a chancre and the development of a roseola in almost 100 per cent of cases. Even if the positive evidence alone is thus trustworthy, the plan is worth extended trial, and if a negative result is equally good proof of the non-specific nature of a venereal sore, an important advance has certainly been made.

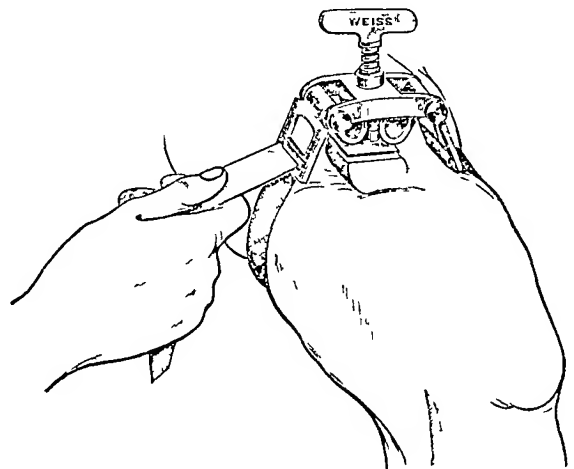
NEW INVENTIONS

DOUBLE ACTION ALAR TOURNIQUET

DESIGNED BY N P O'GORMAN LALOR,

MAJOR, I M S

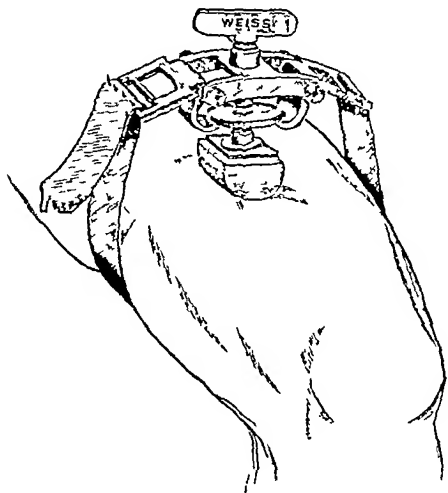
THIS Tourniquet, as its name implies, is a double-action one, and appears to present several distinct advantages over similar instruments in previous use.



1 The motion of screwing down the pad on the wounded vessel, at the same time raises two metal wings at either side of the instrument. This action results in diminished pressure upon the limb, and the return venous circulation is

encouraged, in place of being obstructed, as it is by instruments of the usual type

2 The double movement which every turn of the screw causes, considerably increases the mechanical advantage of the latter. The vessel is thus rapidly compressed by a few turns of the screw



3 The bearing points of the instrument are so far apart that the skin cannot be nipped up between them, however rapidly it is applied

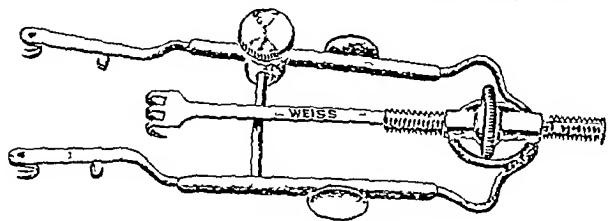
Note—In use the pad should be applied directly over and parallel to the course of the vessel, and the tape should be well tightened around the limb before the instrument is screwed down

The instrument is made by John Weiss & Son, Ltd, 287, Oxford Street, W

A NEW RETRACTOR FOR USE IN EXCISION OF THE LACHRYMAL SAC

By N BISHOP HARMAN

SOME form of retractor is almost a necessity in performing the operation of excision of the lachrymal sac. Firstly, to open out the incision, which is awkwardly situated in a narrow place betwixt the inner canthus of the lids and the side of the nose. Secondly, because efficient traction on the tissues provides the best means of checking bleeding. At present Muller's and Axenfeld's retractors are the most generally used



Muller's is neat and convenient in form, but not sufficiently powerful as a hæmostat. Axenfeld's is large and clumsy, but very efficient as a hæmostat yet it has a serious drawback in that its large claws drag the wound open vertically, and the upper claw is greatly in the surgeon's way in removing the upper *cul-de-sac*

of the main sac, the complete removal of which is essential to the success of the operation

The instrument shown in the cut combines the actions of these two forms of retractors. The frame is that of Muller, and it is no larger than his neat model. But, by an alteration of the prongs at the extremity of the laterally acting blades, and the addition of a claw (something like an old-fashioned "black-scraper") which can be drawn back by the milled nut at the spring end of the frame, this retractor will exert the powerful tractor action of Axenfeld's instrument, and yet leave the upper end of the site of the operation free. In inserting the new retractor the instrument should be first closed, the blades approximated, and locked by a turn of the side check-screw and the long claw pushed home to just behind the side prongs of the lateral blades. The claws are inserted into the wound just as in using Muller's instrument. Now the side check-screw is released, and the blades being forced apart by the spring of the frame stretch the incision laterally. The side check-screw should now be firmly locked. The blades are then gently pressed into the wound by one finger, and the milled nut at the spring end of the frame turned so as to draw back the long claw. The front claws on the blades are pivoted and so shaped that they oppose the backward drag of the long claw, so that the incision is stretched tight. The field of the operation is well exposed, and the traction exerted on all sides of the wounds acts as a most efficient hæmostat, yet the important upper limit of the wound is left quite free of any obstruction that would hinder the work of the surgeon.

The instrument is made in excellent fashion by Messrs John Weiss & Son, Ltd, 287, Oxford Street, London, W

Reviews

Notes from Thoughts and Practice—By W. J TYSON, M.D., F.R.C.P., F.R.C.S. Messrs John Bale, Sons and Danielsson, Ltd., London. Price 2s net

DR TYSON is most assuredly right in his contention that much experience and "out of the way" knowledge gained by observant practitioners during twenty or thirty years of practice is lost to mankind. In many men this knowledge remains, so to speak, in solution, every now and then it may be crystallized and made of definite use, but much of it is lost except to the possessor. Perhaps one of the main reasons of this is that when a man has gathered much he is too busy to record it, or perhaps has little wish to write—the facility of putting one's thoughts on paper varying widely in different individuals, thus it often comes to pass that when men have little to do they often

write books and when they should write books they have no time

Dr Tyson in these "Notes and Thoughts" has given us some very suggestive ideas and much criticism on ordinary book knowledge. He has condensed a good deal of information into the small volume and has produced a very readable set of short articles, giving the results of his observations on some diseases and their treatment. We were particularly struck by his plea for a more precise classification of disease. What is wanted is that the known causes of disease should have a proportionate value put upon them, and that no prominent symptom should be classified as a disease if it is possible to place a causative or defining adjective in front of it. Thus in using the words pneumonia, peritonitis, etc., the diagnosis is not made—a prominent sign is indicated by the words—qualify it by the word septic or tubercular and at once we get a clear idea of the true condition.

Very suggestive also are Dr Tyson's remarks on the trend of the present teaching of medicine on the future members of the profession. All the different methods of prevention of disease are being brought about by ourselves. It is one of the most extraordinary occurrences of the present day, that a great profession is digging its own grave. Yet to be honest we must go on digging that grave. As medicine approximates more and more to the character of an exact science, its chief aim tends to change from the cure to the prevention of disease. In the defence of the public health its most conspicuous triumphs have been won, and in this direction lies the hope of its future expansion.

When a knowledge of the general principles of physiology and of the laws of health is the common property of all, the belief in futile remedies will cease, and quackery will die a natural death.

Medicine will no longer be looked upon as the art of curing disease, but as a science of preventing such of them as cannot be altogether abolished.

When that time comes—still far-off—the physician will take the place that rightly belongs to him as one of the most important functionaries in an enlightened state.

Notes on Applied Sanitation in Japan—

By Lieutenant Colonel J. SMYTH, M.D., I.M.S.,
Sanitary Commissioner in Mysore

THIS account of Colonel Smyth's visit to Japan to study applied sanitation will be found most interesting reading. The practical Japanese have whole-heartedly adopted whatever they have found beautiful and good and useful, from Western knowledge, and have applied it to their daily life. Whatever of their own old methods, after all due consideration and investigation, and suppressing all sentiment, they found clearly good and useful, that they have retained. They freely admit they may be wrong in some

of these matters, and nothing can be more certain than that if they can prove themselves wrong, which they are always trying to do, for then's is the experimental method, they will adopt different procedures as soon as better ones are to be found.

Colonel Smyth deals with the majority of the sanitary problems and we have read his notes with much interest and profit. His reflections on the supervision of prostitution, as obtains in Japan, are sound and well worthy of careful consideration. We congratulate the author on the amount of work he was able to get through during a short visit, the credit he gives to the kindness, and ready assistance of all the officials with whom he had to deal.

The Feeding of Infants—By Captain V. B. NLSFIELD, F.R.C.S., I.M.S. Pioneer Press, Allahabad. Price Re 1

THIS little practical guide to the young mother should become very popular. It is short, concise and practical; the language used is simple and capable of being understood by everyone. The author gives practically all that is necessary, without medical interference, in the proper feeding of infants, and with the assistance of this little book the mother should be able to do with a minimum of medical interference.

The Modern Mother: A Guide to Girlhood, Motherhood and Infancy—By Dr H. LANG GORDON. Illustrated. Price 6s net. Messrs. Weiner Laurie, London, 1909.

WE can heartily recommend this book to the attention of medical men who are often called on to recommend a work of this sort for the information of the general public. The author points out the errors and abuses of modern life which affect injuriously the health of women and children. At the same time, he clearly assists the mother and others to understand the physiology of womanhood, motherhood, the care of the infant and young girl, and the detection and treatment of common complaints. The whole subject-matter is clearly written, easily understood and reaches a high level of the proper ideals that should actuate the modern mother.

Every household should possess a copy and it should be carefully read by all mothers and its precepts instilled into the minds of their daughters as development takes place.

ANNUAL REPORT

FORTY-FIRST ANNUAL REPORT OF THE SANITARY COMMISSIONER FOR BENGAL, YEAR 1908

THE experiment for testing the accuracy of the registration of vital statistics, which was started in 1906 in parts of the Burdwan district, was continued throughout the year under report, with the result that out of 2,616 deaths recorded in the area under examination, the cause of death in no less than 1,036 was found to have been wrongly described, especially under the head of "Fever."

The mortality from this disease was the highest ever recorded. The total number of deaths registered was 268,908, or 5.32 per mille, in comparison with 207,702 deaths during the preceding year which, in its turn, showed the highest death rate returned since 1901. The climatic conditions of the year affected the sufficiency of the supply of drinking water, and to this fact, as also to the use of unwholesome food, the regrettable incidence of the disease is attributed.

In view of the steady increase in the mortality from small pox, which amounted during the year to 35,966, or nearly double the average of the five years 1903-1907 viz., 18,750 it is satisfactory to note that vaccination continued to make progress. The total number of operations performed during the year 1908-09 in the whole province, excluding the Tributary State of Pal Lahari in the Orissa Division, was 2,241,516, of which 304,767 were revaccinations against 2,038,371 original cases and 190,031 revaccinations during 1907-08.

It is satisfactory to note that the mortality from plague was the lowest on record since 1901. Only 15,948 persons fell victims to the disease during the year against 83,602 such deaths during 1907. More than two thirds of the deaths occurred in the Patna Division, and while Calcutta retained the highest rate (2.09), this is less than half that recorded in 1907. Thirteen districts were free from the disease. The epidemic followed its usual course, reaching its climax in March, when more than one third of the total deaths took place. Altogether 5,753 plague inoculations were performed of which 3,043 were in Calcutta and 2,200 in Bhagulpur. There is little evidence in support of the hope expressed last year that popular prejudice on the subject is weakening. The only preventive measure received with any favour was the evacuation of infected dwellings. Chemical disinfection was resorted to in a few special cases only at the instance of the people themselves. Itinerant medical subordinates were employed in the districts of Patna, Muzaffarpur and Darbhanga for the treatment of plague cases and the supervision of preventive measures. Rat destruction was carried on with more or less vigour in almost all the districts in Bihar, noticeably in Monghyr and Saran, but the system of the payment of rewards for dead rats is being gradually discontinued, the work being done by organised staffs. Traps were chiefly used to catch these vermin, the use of poison, particularly in Shahabad being objected to by the people. The Civil Surgeon of Saran (Major Gwyther), in which district rat killing operations have perhaps had the most systematic trial, gives it as his opinion that they have made no appreciable difference in the numbers of these animals.

Fever. The number of deaths registered under this head was 1,184,704, as compared with 1,171,540 in the previous year, and 1,122,397, the average of the five years 1903-1907 the ratios being 23.44, 23.18 and 22.21 per mille respectively. The mortality under the head of "Fever," though doubtless due in great part to causes other than malaria, represents no less than 60.80 per cent of the total mortality in the province from all causes.

In pursuance of the policy of conducting systematic investigations into the prevalence of fever, a special inquiry was made by Captain W. C. H. Foster I.M.S., with the assistance of two Assistant Surgeons and six Civil Hospital Assistants, into the circumstances of the most malarious tracts in the Patna and Muzaffabad districts. His report is now under the consideration of Government. Notwithstanding the unfavourable conditions of the year, there was a considerable decrease in the sale of piece pickets of quinine, which fell to 13,307 piculs as compared with 22,497 sold during 1907. Measures have recently been taken, which it is hoped will further extend and popularise the use of the drug, as the result of a reduction in its price and its issue not only in the form of powder, but also, and chiefly, in small tablets.

Dysentery and diarrhoea.—There was a noticeable increase in the mortality from this cause as compared with the previous year the number of deaths recorded being 64,899, against 51,670 in 1907, 48,920 in 1906, and 47,441 the average of the five years 1903-1907. The causes operative in the case of cholera affected the figures under these heads also.

TRIENNIAL REPORT ON THE LUNATIC ASYLUMS IN BENGAL FOR THE YEARS 1906, 1907 AND 1908

In order to make this report complete in itself it is necessary to recapitulate some of the events in connection with Lunatic Asylums which have already been reported in the annual brief notes of the years 1906 and 1907 as they comprise some of the principal events of the triennium under review. One of these is the closure in 1906 of the Cuttack Asylum and the transfer of its inmates, numbering 36 males and 1 female, to the Behampore Asylum. This was carried out without mishap. There has thus, since 1906, been only three Lunatic Asylums in this Province, viz. two for natives, one at Behampore and the other at Patna, and one for Europeans in Bhowanipour (Calcutta) instead of four, the number treated of in the last triennial report.

Formerly the Civil Surgeon of the district in which an Asylum was situated was Superintendent of that institution in addition to his other work. His multifarious duties at the station, which had first to be attended to, and his want of special knowledge of lunacy rendered this an unsatisfactory arrangement. This remedy was to a great extent removed in 1906 by the appointment to the Behampore Combined Asylum of a separate expert medical officer, Major C. J. Robertson Milne, I.M.S., who had considerable experience of Asylum management elsewhere. He took charge of the Asylum at Behampore on the 29th October 1906.

The appointment of a whole time officer skilled in Asylum management and who is most patient and sympathetic in his dealings with the insane patients, has resulted in great advantage to themselves and in the more efficient administration of the Asylum generally.

The revised scheme for the construction of a Central Lunatic Asylum for natives at Ranchi which was submitted to the Local Government in 1907, has been approved by the Government of India. Accordingly detailed plans are now being prepared, most of which have already been approved by me. The cost is estimated at Rs. 18,44,170. As regards the establishment of a Central European Lunatic Asylum at Ranchi the Special Committee appointed by Government submitted in 1908 a revised scheme, which is now under the consideration of Government. As stated in last year's notes both these Asylums have been planned on the Villa Colony system, and are a great advance on all former Asylums in the East.

The following officers held charge of the Lunatic Asylums during 1908—

Bhowanipour.—Captain J. C. H. Leicester, I.M.S., from 1st January to 22nd November 1908 and Captain J. G. P. Murray I.M.S., from 23rd November to the close of the year.

Patna.—Major B. C. Oldham, I.M.S., all through the year.

Behampore.—Major C. J. Robertson Milne, I.M.S., from 1st January to 30th March and Captain L. Cook, I.M.S., for the rest of the year.

I inspected all the Asylums, more than once during each of the three years under review and have much pleasure in bearing testimony to the efficient manner in which these institutions are managed. As this will probably be my last report on Lunatic Asylums, I desire to offer my sincere thanks to Major C. J. Robertson Milne, I.M.S. Superintendent, Behampore, and the other officers who at different times acted in charge of the other Asylums for their very zealous discharge of their duties and their loyal co-operation in our endeavours to do the best for the afflicted patients under their charge.

SANITARY ADMINISTRATION OF THE PUNJAB, 1908

The salient features during the year were the marked decrease in plague and a severe outbreak of malarial fever in the autumn. Scarcity conditions continued to prevail, thus aggravating the mortality from malaria and causing a rise in the rate of wages in the latter half of the year.

The principal feature of the year was the severe outbreak of malaria during the closing months. The death rate from fevers rose to 34.66, which has only twice been exceeded—in 1890 and 1902, when it was 33.05 and 34.83 respectively. Both these years were marked by great scarcity, coupled with a heavy monsoon rainfall. During the last four months of 1908 there were no less than 460,000 deaths from fever. If the case mortality be taken at 10 per cent (which is a high estimate), there must have been 4,600,000 persons suffering from malaria or more than one quarter of the population of the province. Strenuous efforts were made to cury through the distribution of quinine to the very homes of the people. Itinerating dispensaries were organized. The services of the plague staff, of school masters, native druggists, village headmen and Government Officials were taken full advantage of. Where a system of regular weekly or bi-weekly dosage was introduced the results were most satisfactory and an almost complete immunity from fever was secured. Sir Louis Dene urges on all concerned the cardinal importance of taking the necessary measures to meet a calamity such as last year's, which disorganized the whole province with a distributing agency fully equipped and minutely organized. In the case of a great malarial outbreak foresight is everything, and plans laid down in times of freedom from sickness may prove the means of saving thousands of lives.

The fever was everywhere of a very severe type, frequently causing death after an illness of a few days only. Everywhere also cases were common in which dysentery or diarrhoea accompanied or followed the febrile attacks and contributed largely to their fatality. In some cases the intestinal symptoms were choleraic in their severity.

A very serious feature of the malarial outbreak was the very high mortality it caused among children. The number of deaths from fever of children under 10 years was 363,247, rather more than half (52.11 per cent) of the total fever

mortality of the whole population and 66.48 per mille of children living at this age.

The younger the children the more severely did they suffer, thus while the fever death rate of children from 5 to 10 years of age was 17.95, that of children 1-5 was 89.02 and of infants under one year 202.26, or calculated on the number of births registered during the year 158. Next to infants old people of 60 and upwards suffered most from fevers, the death rate for this age period having been 94.61.

The lowest fever death rates were those of the age periods 10-15 and 15-20 which were respectively 11.91 and 11.74, from the latter these rates gradually rose and were as follows—20-30 12.83, 30-40 1.48, 40-50, 20.92, and 50-60, 33.07.

The female death rate from fevers in the province exceeded the male death rate at every age period. The excess did not amount to more than 7 per cent among infants and persons beyond forty years. Among children over one and under five years and over five and under ten years, the excess was 14 and 18 per cent respectively. In the child bearing age periods, it was as high as 40 per cent at ten to fifteen, 27 per cent at fifteen to twenty, 30 per cent at twenty to thirty and 32 per cent at thirty to forty.

It is worthy of note that children under five years and old people over sixty years, suffer much more severely from fevers than they do from plague. For instance, the provincial death rate from plague at all ages (30.27 per mille) in 1907 approximated that of 34.66 from fevers in 1908. Yet the plague rate for 1907 among infants (calculated on births) was only 34 per 1,000, while the fever rate in 1908 was as high as 158. Among children over one and under five years the plague rate was 25.68 compared with 89.02 from fevers and among old persons 53.07 and 94.61 respectively. On the other hand plague is considerably more fatal among persons in the best years of life than fevers. Thus while the plague rate at the age period ten to fifteen years, was 27.65 in 1907, the fever rate in 1908 at that period of life was 11.91. At the age period fifteen to twenty, the plague and fever rates were 27.22 and 11.74 at twenty to thirty 25.45 and 12.83, and at thirty to forty 28.86 and 11.84 respectively.

Plague.—The following report drawn up by Major S. Bowning Smith M.S., Chief Plague Medical Officer on plague, has been furnished by the Inspector General of Civil Hospitals Punjab, in accordance with the orders of Government—

In 1908 the incidence of plague was far from being severe in fact, the past year has been by far the mildest plague season that has been experienced in the Punjab since the disease became widespread. Only 48,065 cases and 40,106 deaths were reported. 30,682 of the latter occurring in British districts and the remainder 9,424, in Native States. This mortality for the whole province is actually much less than that which occurred in many single districts in 1907 including Gujranwala 71,813, Sialkot 62,609 Gujrat 58,600, Lahore 47,412, Jullundur 39,705. Since the first invasion of the province up to the end of 1908 plague has caused the loss of 2,061,885 lives.

The comparatively small number of cases cannot be attributed in any degree to a contraction of the infected area, for, although infection was mild, it was widespread. It is true that six districts remained uninfected throughout the year as compared with two in 1907, but the four of these that were infected in the latter year were not seriously attacked. The number of districts infected in the spring was 23, but at the end of the year only 13 returned cases. The districts most severely infected were Gujranwala 5,040 deaths, Ludhiana 4,726, Lahore 3,508 and Ferozepore 3,095.

Seasonal variation.—It is the period of maximum intensity in the spring that marks a year as being a bad or a good one from the point of view of plague, that is to say the large majority of cases that occur during any year are caused by the epidemic which begins in the autumn of the preceding year. It is therefore in the latter half of 1907 that the principal explanation of the mild year of 1908 must be looked for. Although the factors which determine the severity or the reverse of plague incidence are not completely understood, and further elucidation is required before the variations in plague activity can be satisfactorily explained, yet it appears that certain conditions of climate inhibit or augment epidemics. The actual facts are of great interest, the monsoon of 1907 came to an abrupt end about the 20th of August and subsequent to this the year was rainless, and humidity generally was in defect in consequence of this the rise in plague figures that normally begins in September and continues till April or May was entirely absent up to January. Perhaps this marked deviation from the normal can be explained by the supposition that a certain amount of rainfall or humidity is an essential factor for plague activity, in addition to the favourable temperature conditions known to be necessary which were certainly present during this period. Support is given to this conclusion by the fact that heavy rain occurred in the second week in January and the rise in plague figures commenced in

the week ending January 2nd. The mildness of the epidemic was probably further accentuated by the dry spring and early summer, which resulted in the seasonal decline beginning early, the period of maximum activity being reached in the third week in April instead of the second week in May as in 1907. The plague active season, therefore, only extended from the end of January to April in 1908, instead of September to May, as is usually the case. The climatic conditions of 1908 were very similar to those of 1907 OS, and in both cases the epidemics were mild. From the end of April plague rapidly declined in the usual way until in the last week of July no cases were reported, only two sporadic cases were recorded in the following week and none in the next, a state of freedom of the whole province which has not occurred for many years. The autumnal rise although not completely absent has again been abnormally low and in the last week of 1908 only 395 cases were reported. Judging from the conditions at the close of the year the outlook is a favourable one, although it is yet possible to have an epidemic of moderate severity in the spring.

Attitude of the people.—The attitude of the people with regard to plague and the measures advocated for its suppression shows little evidence of actual interest or desire to help themselves. There is no doubt that education, derived both from experience and the continued teaching of the plague staff, has resulted in a wide common-sense knowledge of the way plague is contracted and spread and also of the reasons for the measures employed. The people, however, in mild seasons look upon the disease entirely as a matter of course much in the same way as they regard malaria, and although generally they are quite friendly disposed and recognise that the staff are trying to help them, they regard protective measures as a superfluous and needless bother. Much, however, has been accomplished and the possibility of combating epidemics, so far as may be practicable, is gradually but surely increasing.

Measures.—Rat destruction by trapping is now systematically carried out in over 100 municipal towns and in 620 endemic centres or places which have in the past been dangerous diffusion centres of plague. In as many places as possible which were infected late in the spring and where in consequence recrudescence was expected towards the end of the year, baiting was carried out early in the autumn. Up to the end of the year plague had only reappeared in three of the places, selected for systematic trapping because plague annually reappeared there, and recrudescence has been practically confined to places which had escaped observation or treatment, it is natural to conclude that these operations must have had a very considerable effect in mitigating the incidence of plague. Systematic trapping is now being carried out in certain well defined areas in many districts to afford object lessons to the people. It is an encouraging fact that this system has been adopted throughout nearly the whole of the Jullundur district at the request of the people themselves who have paid half the cost of the traps and it appears likely that this will extend to the Hoshiarpur district. It is noteworthy that those old infected districts, where systematic trapping has been adopted to a very considerable extent Jullundur, Gujranwala, Amritsar and Sialkot, were completely free from plague at the end of the year. Rat poisoning has been limited to those places infected late in the spring to prevent or delay recrudescence, and to healthy villages surrounding an infected one, to render them temporarily immune while the epidemic is going on. The results appear to be favourable and plague has not spread in the usual way. The actual number of rats known to have been destroyed during the year in British districts was 4,116,331, large numbers are also destroyed by poisoning which are not recorded. Rat destruction has been taken up with much energy in Patiala State and 250,141 rats destroyed, this is reported to have been attended with markedly favourable results.

Evacuation.—Everything that is possible, has been done to encourage and help the people to adopt evacuation as a remedial measure. Rewards are offered *chappars* and tents are provided, and also *chankidars* for the evacuated site and camp. In the greater part of the Punjab, however, it is in the highest degree unpopular and in thickly populated areas the people will not accept it whatever encouragement is given. In sparsely populated tracts evacuation is often readily resorted to by the people on their own initiative, particularly in parts of Jhang, Lyallpur, Montgomery and Shahpur districts in the Shahrkpur tahsil of the Lahore district, and in hilly tracts where there is plenty of waste land to camp on and plenty of jungle scrub, reed, etc., from which temporary shelters can be made.

Inoculation.—53,629 inoculations were performed during the year, making a total of 1,581,151 since 1897, when the operation was first introduced. The people, therefore, have been fairly widely educated in this measure. But even where its good effects are fully recognised it is not accepted unless plague is near and danger imminent, and this attitude cannot be condemned as unintelligent.

Correspondence

EXTRACTION OF THE LENS IN ITS CAPSULE

To the Editor of 'THE INDIAN MEDICAL GAZETTE'

SIR,—For some time past there has been a discussion in the *Indian Medical Gazette* regarding the results of the intra capsular as compared with the capsule incision operations on cataracts. Having had the opportunity of personally watching some cases both during and after the operations and to follow their results, I desire to note below my impression about the operations and hope you will be good enough to publish them in your esteemed journal.

Major H. Gidney, I.M.S., Civil Surgeon, Mysnensingh performed the following operations during his inspection of the Jamalpur Sub divisional Dispensary on two occasions in August and October last

Cataracts	{ Intra capsular Capsule incision Needling	107
		3
		4
		15
Indecotomy		2
Pterygium		1
Prostatectomy		1
Sacoma of Eyeball		1
Total		133

of these the Cataract cases alone are of interest to me. The three cases of capsule incision were not suited for the operation within the capsule, being attended by increased tension and prominent eyeballs. Escape of vitreous occurred in six cases of the intra capsular operations giving a percentage of 5.61. The complications during the after treatment were septic iritis in two and prolapse of the iris in six cases.

The results of the intra capsular operations as noticed by me were as follow—

Failures	1.57
First class successes	94.39
Second class successes	3.74

Total 100

The two septic cases have been shown as failures, and the six cases with prolapse of the iris as second class successes. The majority of the rest of the cases had good vision. Escape of vitreous by itself is not of much consequence if the patients are kept lying in bed for a few days, and striped Keratitis always disappeared under appropriate treatment such as Dionine.

The above figures will speak for themselves and are certainly much better than those quoted by Major Scott Moncreiff from the United Provinces statistics for 1903-04. As for myself I am convinced of the superiority of the intra capsular operation over the old one. The advantages which it possesses over the others are high degree of vision, clear black beautiful pupil, marked absence of complications during the after treatment such as soft lens matter in the anterior chamber producing iritis and necessitating a long detention in hospital and the frequent use of atropine and mercury, and the entire absence of the opaque capsule which not infrequently maims to a considerable extent an otherwise successful operation under the old method. These fully justify, in my opinion, the superiority of the more recent operation and amply repay the care and patience without which skill in this operation can never be acquired.

These results which can scarcely be beaten in any up to date hospital are all the more interesting as the operations were performed in six days in a small subdivisional dispensary and can be accepted as proving beyond a shadow of doubt that successful eye surgery is neither casual nor slipshod as Major Scott Moncreiff noted in a recent issue. I am told Major Gidney has performed about 500 cataracts in other successful dispensaries in this District. It would be very interesting to have the results of these cases from the various Medical officers in charge.

Yours faithfully,

BARADA SANKER BHATTACHARJI, M.B.,
JAMALPUR Asst. Surgeon

ECLAMPSIA AND PUERPERAL MANIA

To the Editor of 'THE INDIAN MEDICAL GAZETTE'

SIR—I was urgently called to attend to a case of a pregnant woman in full term (2nd pregnancy) who was working into severe fits on the evening of the 16th October. I found the patient, a Burmese woman aged 20 years with oedema of both legs, unconscious and working into severe fits having five women round her to press her down on bed to prevent her hurting herself, also apparently to prevent further fits coming on. I at once started giving her chloroform to allay the severe convulsions before making the necessary examination to ascertain the progress of labour if present. There was

a momentary cessation of fits, but they came on again more vigorously. By vaginal examination the os was found high up and three fourths dilated and head presenting with water bag intact. I dilated the os with my fingers a little more and burst the water bag. As there was no one else to give me a helping hand, and the fits were getting more and more severe every moment I had to start chloroform again. When at chloroform administration I heard, as well as others, a noise, one woman said it was the noise of water bag bursting. Another said no, it is the child. I left off chloroforming and turned to ascertain what had happened and to my intense surprise I found the child delivered spontaneously and lying on bed with the cord round the neck and asphyxiated. I cut the cord and removed the child which was brought round after more than 10 minutes artificial respiration. The placenta was removed after 15 minutes by expression on lower abdomen. No douching done at all. As soon as the child was spontaneously delivered the fits ceased suddenly and completely, but the unconsciousness with stertorous breathing continued nearly one hour. When she regained consciousness it was only to get into a severe violent and boisterous mania. I gave the patient a hypodermic injection of morphine, atropine and strychnia which quieted and put her to sleep till 3 A.M., the whole of next day, she was more or less noisy and unsteady in mind. Chloral Bromide with ergot and mag. sulph. mixture cured her entirely in next two days, and she is now in as good health as any robust woman who had an easy confinement. Swelling disappeared altogether. Heart normal, urine contained a small quantity of albumen, she had an easy labour at first confinement.

The interesting points in this case are—

- (1) The spontaneous delivery of the child of ordinary full size whose head was felt high up a few minutes ago.
- (2) The sudden and complete cessation of fits as soon as the child was expelled.
- (3) The puerperal mania intervening an hour after the labour and the patient getting over it within 36 hours.
- (4) The occurrence of both eclampsia and puerperal mania.

I am, Sir, Yours,

MANDALAY
24th October 1909

P. I. KUMARAN,
Medical Practitioner

AN EPIDEMIC OF TWENTY ONE DAY FEVER IN CHILDREN

To the Editor of 'THE INDIAN MEDICAL GAZETTE'

DEAR SIR—I am induced to write these few lines, simply because I have never come across this disease before either in children or in adults during my residence here for the last seven years. And now within the last three months only no less than eighteen children have been brought under my direct treatment for this disease which I am sure is an Infantile Enteric Fever prevailing in an epidemic form.

The age of these patients varied from 13 months to 12 years, none of them being above 12 years.

The onset was of course insidious as our text books describe and so none of these cases was brought to me before 6th day. The temperature then usually remained between 103° in the morning to 105° in the evening. In mild uncomplicated cases it got down to normal exactly on 21st day and never rose again. While in majority of cases it was prolonged for five to eight days more either in a remittent or an intermittent form. Unfortunately it was impossible to prepare a complete temperature chart in these outdoor cases.

In those cases brought on 6th or 7th day I could very clearly detect gurgling in Right Iliac Fossa and not later on.

Only two cases had diarrhoea with typical stools, while the remaining were more or less constipated with a little tympanitis in the third week.

The chief peculiarity that I noticed was that there was no roseolar rash at all in any of these 18 cases. But Miliaria and Sudamina invariably appeared in all cases between 14th to 17th day. This sort of eruption was very minute even smaller than prickly heat, quite distinct with fine white points, amongst which were scattered occasionally about a dozen bigger clear bright vesicles. The eruption was limited to the lower half of chest front of the abdomen, and upper half of the thighs, only in one case on face, but never on extremities or back. They began to desquamate in fine scales from about the fifth day of their appearance.

Bronchitic Rales were present in both lungs in all cases without exception.

Urine examined in eleven cases gave positive Ehrlich's Diazo Reaction even on the 6th day. Two of these showed the presence of albumin also. The tongue was brown in all at the end of second week. Spleen was enlarged in majority of cases.

Four cases died viz., two from meningitis and convulsions, one from diarrhoea with pneumonia and one child 13 months old from high fever 106.4 on the 21st day.

The peculiarities are that no second child was affected in the same house, no ischaemic rash was noticed, and that no adult was ever seen suffering from it.

I would like to know the experience of others and therefore I herewith give a start to the discussion on this matter by giving these short notes

Yours truly,

KESHAVAL J DHOLAKIA

29th June, 1909

"TUBERCLE BUT WHERE WAS THE LESION?"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I have to request you to kindly publish the following notes of a most interesting case of tubercle in the next issue of the *Gazette*. The patient was under my treatment for about eight months and she was examined by no less than five experienced doctors. We all agreed that it was a case of tubercle, but up to the last we could not locate the seat of the tubercle.

Awnbai, widow aged 30. Had one child. No history of hysterical or uterine trouble. She came from Bombay where she had been suffering for some time from fever and digestive derangement. When I first saw her she was daily getting hectic fever. The temperature rising to 100.5 or 101 in the evening and coming down to 99 or normal in the morning. She complained of vomiting either after food or at irregular hours. There were also loss of appetite, irregular bowels, slight emaciation and a general low feeling. She was carefully examined. There was no trouble with the lungs, urinary apparatus, uterus and ovaries. The menstrual periods were regular though the discharge was less for some time. Although the liver and spleen were normal, the slight shivering at the onset of fever led me to suspect malaria and she was treated accordingly. Slight attention to the digestive trouble relieved the vomiting. The anti-malarial treatment was of no avail, the fever continued and the patient began to lose flesh. I then began to suspect tubercle and on enquiry found a good history of hæmoptysis a year ago. Although the lungs were normal after nearly three months' fever I expected that affection would show itself at any moment. A general line of treatment for tubercle was at once adopted and the case was being watched. The fever continued regularly and the patient soon gave the appearance of a marked case of tubercle. She was now confined to bed for about four months. The left knee joint then became painful and a swelling soon appeared in front of the patella. The joint could not be moved without pain, and it became a source of great misery to the patient. I suspected that it was going to be tubercular and felt some relief as I thought the explosion has at last taken place and that the fever would now subside and the patient would be left with only a tubercular joint. I was, however, utterly wrong. The swelling had never the characteristic appearance of tubercle and there was no trouble with the joint. The swelling was hot and painful and seemed as if it was going to form into an abscess. There was slight rise in the evening temperature which now stood at 102.103° and came down to 100° in the morning. Emaciation was rapid. A surgeon who was specially called for from Bombay opined that the joint was not tubercular and he made a small incision into the swelling to let out pus. There was, however, no pus, and the incised spot afterwards turned into a typical tubercular ulcer which resisted all treatment and did not heal up to the last. There was no sign of active tubercular mischief in the joint to account for the continued high temperature.

Now I come to the most peculiar features of the case which, in my opinion, form an important factor in making the diagnosis. The patient had vomiting at the beginning of her illness which was relieved by slight treatment. But during the later course of the illness the patient had about a dozen attacks of severe vomiting accompanied with diarrhoea and on one or two occasions unbearable colic for which I had to give morphia injections. The vomiting and diarrhoea lasted for a day or two and could not be accounted for by any irregularity in diet, etc. The sudden onset and equally sudden disappearance reminded one of hysteria or at least some nervous origin. It was agreed that there was no doubt of intestinal tubercle as there was not a single symptom to prove its presence there. Another peculiar feature of the case was the brain trouble on two or three occasions. For a short time before the actual attack she had a feeling of uneasiness and then she began to rave and continued to do so for an hour or so. The irrelevant talk and staring look used to frighten her relatives. On all such occasions I found that caffeine citras and phenacetin in small repeated doses acted like magic. The patient was delirious for a day or two before her death. So far as I know delirium in cases of tubercle is almost rare unless the brain or nervous system is affected. These peculiar symptoms led me to suspect that the tubercle was located somewhere in the brain or its coverings but there was no other symptom which supported such a diagnosis. The patient had never headache and sleeplessness was com-

plained of only in the later stages of the illness. It was on many occasions due to night sweats. The high temperature continued to the last and only when the circulation began to fail she had congestion of the bases of the lungs and slight general bronchitis. Towards the end of the illness, the pain and swelling of the joint diminished to a great extent.

The points about the case are—

I. What was the cause of the high temperature which continued throughout the illness lasting for more than eight months.

II. Where was the seat of tubercle?

III. What was the cause of the marked nervous symptoms? Was the brain or its coverings affected in any way?

Will any of your readers correctly diagnose the case from the above history and publish the same in the *Indian Medical Gazette* and oblige?

ICHAIKARN II,
17th November 1909

Yours truly,
V N DESAI, L.M.S.,
Chief Medical Officer

"BRITISH QUALIFICATIONS FOR THE I S M DEPARTMENT"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I earnestly beg you will kindly allow me a little space in your valuable Journal for a subject of great importance to the Indian Subordinate Medical Department.

Assistant Surgeon Foy's article will, I am sanguine, be very much welcomed by a great number of the department. To be sure it would be worth giving this branch every encouragement in order to enable as many as possible to attain British qualifications. Many an Assistant Surgeon who possesses the head, will and means, of not only increasing his knowledge but his general position as a medical man in India, is barred from doing so owing to some person not in his power to overcome or entailing an unnecessary amount of expense which naturally makes him reluctant to satisfy his ambition.

If an Assistant Surgeon has the means at his disposal why should he not be encouraged to improve not only his own status but that of the I S M D as a whole?

It would incur no extra expense to Government, all that he requires is the necessary leave, and, as Assistant Surgeon Foy points out, the required exemption from the preliminary examination in England in the case of some Assistant Surgeons.

The I M S and R A M C are given study leave and every encouragement thrown out to them to specialise. We of the I S M D would be extremely thankful if some such privileges were allowed us, it would certainly enable us to be more capable Assistants to Dental Surgeon, Eye Specialist, Sanitary officers, etc. Moreover, the I S M D often hold Civil Surgeoncies, surely Government would feel more at ease to see such appointments in the hands of British qualified men, not that a man with purely an Indian diploma is incapable of holding such posts but there is no denying the fact that one's general knowledge of theory and practice can not but be improved by tuition in the United Kingdom and clinical lessons in a hospital there.

Assistant Surgeon Foy's kind suggestion is, I opine, unnecessary and perhaps unfair to those over five years' service. Moreover in this recognised noble profession it is never too late to climb to a loftier niche in the temple of fame.

In conclusion, I earnestly beg, Sir, that you will kindly assist us in getting our Indian Government to give us the necessary help for improving the I S M D and trust that this my humble petition will be favourably viewed.

I beg to remain,

SIR,

Yours obediently,

H BASIE ROSAIR,

Assistant Surgeon in Medical Charge,

R I M S "COMPT"

Service Notes

RETIREMENT

LIEUTENANT COLONEL ARTHUR THOMAS BOWN, Bengal Medical Service, retired on 14th December 1909. He was born on 15th December 1860, educated at St. Georges, took the diplomas of M R C S in 1882, and L R C P London, in 1883 and entered the I M S as Surgeon on 1st October 1884, becoming Surgeon Major on 1st October 1896, and Lieutenant Colonel on 1st October 1904. The whole of his service had been spent in military employment, he had seen a good deal of war service, viz., North West Frontier of India, Hajara, 1888 and 1891, medal with two clasps, Chitral,

1895 relief of Chitral, action of Malakand Pass and action at Khril, medal with clasp, and North West Frontier of India, 1897-98, at Fort Jamrud, clasp

From—P W Monie, Esq., Under Secy to the Govt of India, Home Dept.,

To—The Sanitary Commissioner with the Government of India

In reply to your letter No 1454, dated the 2nd August 1909, I am directed to say that the Government of India agree to your proposal that, with effect from January 1910, the course of training in clinical bacteriology and technique at the Central Research Institute, Kasauli, for Indian Medical Service, officers not belonging to the bacteriological department should last for four weeks, the officers sent for that course being permitted to be absent from their stations for this period, in addition to the actual time occupied by the journey to and from Kasauli, and one day for preparation for each journey. They also approve the suggestion that the classes of instruction should in future assemble in the months of January, March, May, July, September and November each year.

THE FOLLOWING CORRESPONDENCE WILL BE OF INTEREST TO OUR READERS —

I HAVE the honor, by direction of the Surgeon General, Bombay to request you to be so good as to favour him at an early date, with the views of the Grant Medical College Society, on (1) the question of the necessity or advisability of passing a Medical Registration Act for the Bombay Presidency, or in alternative, for the whole of India to registration and the protection of legitimate degrees and diplomas, (2) the scope of such legislation, (3) the extent of its application, (4) the question of who should be admitted to registration, if a register be instituted, (5) the constitution of the body to whom the care of the register should be entrusted and its powers, and (6) any other points which may appear to bear upon the question generally.

The following letter was adopted by the Society at its meeting held on 27th October 1909, and was sent to the Surgeon General on the following day —

WE have the honor, by direction of the Grant College Medical Society, to send the following replies to the queries contained in your letter dated Poona, 4th August 1909 —

1 It is necessary as well as desirable that a Medical Registration Act be passed for the whole of India, including Burma, for registration and protection of legitimate medical degrees granted by the Indian Universities, and of such Diplomas as are recognizable by the General Medical Council of Great Britain and Ireland

2 The scope of the legislation to be similar to that of the Registration Act of Great Britain and Ireland, such as

(a) Full recognition of medical, lunacy and death certificates by Courts of law and public bodies and under factory and other acts

(b) Power to sue in Courts for medical attendance, and other medical charges to be exclusively confined to Registered practitioners

3 The act should be applicable to the whole of India, including Burma, and also to such countries as would accede with us but if it is not feasible to apply it to the whole of India, it may be made applicable to Bombay Presidency at least

4 The act should apply to persons passing medical degrees of the Indian Universities, and the holders of such degrees and diplomas as are recognizable by the General Medical Council of Great Britain and Ireland

5 There should be a General Medical Council for the whole of India, including Burma, constituted solely of Registered Medical men as follows —

(a) Three members nominated by Government

(b) One representative of each University in India

(c) Two members each elected by the Registered Medical practitioners residing within Calcutta, Madras, and Bombay University Circles

(d) One, each elected by the Registered Medical practitioners, residing in the Punjab and Allahabad University Circles

(e) One member elected by the Registered Medical practitioners residing in Burma

(f) Branch Councils may be created for each Presidency or Province, consisting of those members of the General Medical Council, who belong to that particular Presidency or Province

6 The powers of the Indian Medical Council should be such as those possessed by the General Medical Council of Great Britain and Ireland, with such modifications as would be necessitated by the peculiar circumstances existing in this country

MAJOR H BENNETT, M B, C M, B SC, F R C S, I M S, has been granted privilege leave of absence for six weeks from the 14th September 1909

HIS Excellency the Governor in Council is pleased to appoint Assistant Surgeon Darabshah Edalji Kothavala, M B & S, to act as Civil Surgeon Surat, during the absence of Major H Bennett, M B, C M, B SC, F R C S, I M S, or pending further orders

CAPTAIN T S NOVIS, I M S, is granted, from the date of relief, such privilege leave of absence as may be due to him on that date and six months' study leave, in combination with furlough for such period as may bring the combined period of absence up to one year

THE appointment of Captain M S Irani, I M S to act as Civil Surgeon, Bijapur, made in Government Notification No 5307, dated the 12th October 1909, is cancelled

CAPTAIN R W ANTHONY M B, C M, I M S, is appointed, on return to duty, to act as Civil Surgeon, Belgaum, pending further orders

ON his return from leave Lieutenant Colonel G J H Bell, M B I M S, is appointed to be Superintendent of the Rangoon Central Jail in place of Lieutenant F C Fraser, M D, I M S, transferred

ON relief by Lieutenant-Colonel G J H Bell, Lieutenant F C Fraser M D, I M S, is appointed to officiate as Superintendent of the Insein Central Jail, in place of Captain C C C Shaw, M B, I M S

THE services of Captain C C C Shaw, M B, I M S, are replaced at the disposal of the Government of India

CAPTAIN V B NESFIELD, I M S, is allowed combined leave for one year, viz, privilege leave for thirty days under Article 233 of the Civil Service Regulations, with effect from the date on which he may be relieved, and leave out of India for the remaining period

MAJOR W H KERRICK, I M S, Civil Surgeon, 2nd Class, is appointed to officiate as Civil Surgeon, 1st Class, with effect from the 5th August 1909, vice Lieutenant-Colonel H E Binatvala, I M S, on leave, or until further orders

WITH reference to the Notification of the Government of India in the Home Department, Major H G Melville, M D, F R C S E, I M S, Professor of Materia Medica, Medical College, Lahore assumed charge of the duties of officiating Principal and Professor of Medicine, in addition to his own duties, with effect from the forenoon of the 1st of October 1909, vice Major D W Sutcliffe, M D, C M, I M S

WITH reference to the Notification of the Government of India in the Home Department, Captain A C Mac Gilchrist, M D, I M S assumed charge of the duties of officiating Professor of Materia Medica Medical College, Lahore, on the forenoon of the 19th of October 1909, relieving Major H G Melville M D, F R C S E, I M S, of the additional duties connected therewith

THE services of Captain J W D Megaw, M B, I M S, are placed permanently at the disposal of the Government of Bengal

THE services of Captain E A Roberts, I M S, are placed temporarily at the disposal of the Government of Madras

THE services of Captain R A Chambers, M B, I M S, are placed temporarily at the disposal of the Government of Bombay for employment in the Jail Department

LIEUTENANT COLONEL ARTHUR THOMAS BOWN, I M S, Bengal, has been permitted by the Secretary of State for India, to retire from the service subject to His Majesty's approval, with effect from the 14th December 1909

ON return from the combined leave granted him by Order No 816, dated the 15th April 1909, Lieutenant Colonel R B Roe, M R C S, L S A, I M S, Civil Surgeon, is reposted to the Nagpur District

THE Chief Commissioner is pleased to reappoint Lieutenant Colonel R B Roe, M R C S, L S A, I M S, Civil Surgeon, Nagpur, to be Superintendent, Lunatic Asylum, Nagpur

CAPTAIN W S MCGILLIVRAY, M B I M S, Officiating Civil Surgeon, Saugor, is deputed for a short course of instruction at the Central Research Laboratory, Kasauli, with effect from the 7th November 1909, or subsequent date of making over charge

FIRST grade Civil Assistant Surgeon Lakshmi Narayan Choudhary, attached to the Main Dispensary, Saugor, is appointed to officiate as Civil Surgeon Saugor during the absence on deputation of Captain W S McGillivray, M B I M S, or until further orders

I M S SPECIALISTS—The undermentioned officer is appointed a specialist in the subject noted, with effect from 20th September 1909—

Prevention of Disease

Captain H S Matson—Barrage Laboratory, Jhansi

THE King has approved of the retirement of the following Officers of the Indian Medical Service

Lieutenant Colonel Francis Frederick Perry, C I F, F R C S, dated 14th June 1909

Lieutenant Colonel Stephen Little, M D, dated 22nd June 1909

HIS Excellency the Governor in Council is pleased to appoint Lieutenant Colonel I P Smith, B A, M B, M Ch (R U I), D P H, D T M & H (Camb.), I M S, to act as Civil Surgeon, Poona, with attached duties during the absence on deputation of Lieutenant Colonel W H Burke, M B, I M S, or pending further orders

PERMITTED TO RETIRE

Lieutenant Colonel Terence Humphreys Sweeney F R C S I Dated 1st March 1909

Lieutenant Colonel Francis Frederick Perry, C I F, F R C S Dated 14th June 1909

Lieutenant Colonel Stephen Little, M D Dated 22nd June 1909

Lieutenant Colonel Richard John Baker, M D Dated 12th August 1909

THE leave granted to Major W G Richards, M D, I M S, Medical Storekeeper to Government, Madras, in this office Notification No 13 dated the 9th March 1909, is extended by a period of six weeks

LIEUTENANT COLONEL A L DUKE, I M S, made over charge of the duties of the Superintendent of the Peshawar Jail to Captain F E Wilson I M S, on the afternoon of the 11th October 1909

CAPTAIN V B NESFIELD, I M S, Officiating Civil Surgeon, Kamrup, was on privilege leave for twenty eight days from 24th August to 20th September 1909, both days inclusive

THE services of Captain Kanwar Shumshere Singh, I M S, are placed temporarily at the disposal of the Government of the Punjab for employment on plague duty

CAPTAIN R E LLOYD I M S, is appointed to act as Professor of Biology in the Medical College Calcutta, with effect from the 1st May 1909

IN Government Notification No 888T—Medl, dated the 1st October 1909 granting combined leave for two years to Major J C S Vaughan, I M S, Superintendent, Campbell Medical School and Hospital Calcutta, for the words the 1st November 1909 or any subsequent date in which he may avail himself of it, read the afternoon of the 30th October 1909

LIEUTENANT COLONEL EDWIN HAROLD BROWN, M D, F R C S F Indian Medical Service, Bengal, is permitted to retire from the service subject to His Majesty's approval, with effect from the 10th November 1909

THE undermentioned Medical Officers have passed in the subjects shown against their names—

- 1 Captain V B Nesfield, I M S, Assamese (colloquial)
- 2 Civil Assistant Surgeon Homewell Lyngdoh Bengali (colloquial)

LIEUTENANT A A McFILL I M S Civil Surgeon Chikdair held charge of the current duties of the Medical Officer performing Civil Medical duties at Midakand, in addition to his own, from the afternoon of the 24th September 1909 to the afternoon of the 22nd October 1909

CAPTAIN S G STEELE HAUGHTON, I M S, assumed charge of the Civil Medical duties of Chitral on the forenoon of the 7th of October 1909 relieving Captain C H Cross, I M S

CAPTAIN H M CRUDDAS I M S, assumed charge of the Civil Medical duties of the Muzrai Subdivision on the forenoon of the 28th of October 1909, relieving Captain G M Millu, I M S

TO BE SURGEON GENERAL Dated 11th January 1909
Lieut Col Henry Wickham Stevenson

MAJORS TO BE LIEUT COLS Dated 29th September 1909
Herbert Edward Drake Brockman, F R C S E, William Byam Lane, Philip James Lumsden, and Samuel Esmond Prial, M B

CAPTAIN TO BE MAJOR Dated 28th July 1909 John George Patrick Murray, M B and Thomas Henry Delany, M B I R C S I

LIEUTENANT TO BE CAPTAIN Dated 1st February 1909
William Anderson Meuns, M B

TO BE LIEUTENANTS Dated 30th January 1909 Henry Charles Gustavus Semon, M B, F R C I, Andrew Monro Jukes, M D, Gwilym Gregory James, M B, William David Keyworth, M B, Berkeley Gale, M B John Howard Hoine, M B, Harold Holmes King, M B, Richard Edward Flowerden, M B, Mozuffer Din Ahmed Kureshi, John Glendinning Bryden Shand and Alfred John Lee M B

THE services of Major W D Sutherland, M D, I M S, on special duty at the Medical College, Calcutta, are replaced at the disposal of the Government of India in the Home Department, with effect from the 14th November 1909

LIEUTENANT COLONEL J C S VAUGHAN, I M S, reported his departure from India on leave, on the 31st October 1909

MAJOR J G P MURRAY, I M S, First Surgeon Presidency General Hospital, Calcutta, now on leave is appointed to be a Civil Surgeon of the second class

CAPTAIN J W D MEGAW, I M S, Offg First Surgeon, Presidency General Hospital, Calcutta, is confirmed in that appointment, vice Major J G P Murray, I M S

MAJOR P ST C MOORE, I M S, made over charge of the duties of Superintendent of the Campbellpur District Jail to Assistant Surgeon Choudhri Bukat Ali on the forenoon of the 16th August 1909

ON return from the combined leave sanctioned in Punjab Government Notification No 261, dated the 19th March 1909, and subsequently extended by the Secretary of State, Captain C L Dunn, I M S, was posted to Lyallpur as District Plague Medical Officer and assumed charge of his duties on the forenoon of the 1st October 1909 relieving Military Assistant Surgeon Cox

ON return from the leave granted him in Punjab Government Notification No 359 M and S, dated the 17th April 1909, Captain H Ross, I M S resumed charge of the duties of Assistant Plague Medical Officer, Jullundur, on the forenoon of the 24th October 1909

MAJOR F O'KINEALEY, I M S, on being relieved of his officiating appointment as Professor of Surgery, Medical College Calcutta and Surgeon to the College Hospital, is appointed to be Civil Surgeon of the 24 Parganas, with effect from the 10th November 1909, vice Lieutenant Colonel E H Brown, I M S, retired

MAJOR E A R NEWMAN, I M S, was, on return from leave, employed on general duty at the Medical College

Hospital from the forenoon of the 26th to the forenoon of the 30th October 1909

MAJOR E. A. R. NEWMAN, I M S, Civil Surgeon of Bhagalpur, is appointed to officiate as Superintendent of the Campbell Medical School and Hospital, Serdaha, with effect from the afternoon of the 30th October 1909, during the absence, on leave, of Lieutenant Colonel J. C. S. Vaughan, I M S, or until further orders

MAJOR E. E. WATERS, I M S, on leave, is appointed to be Civil Surgeon of Cuttack, *vice* Major F. O'Kinealy, I M S, transferred

MAJOR R. P. WILSON, I M S, Officiating Civil Surgeon of Cuttack, will continue in that capacity during the absence, on leave, of Major E. E. Waters, I M S, or until further orders

CAPTAIN A. G. MCKENDRICK, M B, I M S is granted privilege leave for two months and ten days, with effect from the 13th January 1910

THE services of Captain W. H. Cox, D S O, I M S, are replaced at the disposal of His Excellency the Commander in Chief in India

MAJOR H. BENNETT, M B, C M, B S C, F R C S, I M S, has been allowed an extension from the 26th October to the 12th December 1909, of the privilege leave of absence granted to him in Government Notification No 5462, dated the 22nd October 1909

THE Governor in Council is pleased to appoint Captain R. A. Chambers, M B, I M S, to do duty at the Yeravda Central Prison temporarily under the orders of the Superintendent of the Prison

THE Lieutenant Governor of the Punjab is pleased to make the following appointments —

Samuel George Steele Houghton, M L
Francis William Cragg, M B
Andrew Smith Leslie, M B
Herbert Bodley Scott
George McGiegon Millar, M B

CAPTAIN I. M. MACPHEE, I M S, Officiating Superintendent of the Midnapore Central Jail, is appointed temporarily to act as Civil Surgeon of that district, in addition to his own duties, with effect from the afternoon of the 22nd September 1909

LIEUTENANT COLONEL J. G. JORDON, I M S, on being relieved of his officiating appointment as Police Surgeon and Professor of Medical Jurisprudence Medical College, Calcutta, is appointed to act as Civil Surgeon of Darbhanga, with effect from the forenoon of the 20th October 1909

ON return from the deputation under the Government of Bengal, Major W. D. Sutherland, M D, C M, I M S, Civil Surgeon, is posted to the Saur District

UNDER Section 6 of the Prisons Act, 1894, the Chief Commissioner is pleased to appoint Major W. D. Sutherland, M D, C M, I M S, Civil Surgeon, Saugor, to the executive and medical charge of the Saugor District Jail

THE services of Captain W. H. Cox, D S O, I M S, Superintendent of the Lunatic Asylum, Rangoon, are replaced at the disposal of the Government of India in the Home Department

ON his return from leave Captain W. S. J. Shaw, M B, I M S, is appointed to be Superintendent of the Lunatic Asylum, Rangoon, in place of Captain W. H. Cox, D S O, I M S

ON return from deputation at Simla, Captain Ba Ket, I M S, is appointed to the Civil Medical charge of the Pegu District,

Name	Rank	Appointed	Posted or transferred to	With effect from	REMARKS
Lieut. M. Courtney, I S M D	Civil Surgeon		Hissai	30th Septem- ber 1909 (afternoon)	On return from privilege leave relieving Assistant Surgeon Ram Narayan
Lieut. Col. J. R. Adie, I M S	Ditto		Ferozepore	9th October 1909 (afternoon)	On return from privilege leave relieving Assistant Surgeon Sri Ram
Capt. A. S. M. Peebles, I M S	Medical Officer, 18th Tiwana Lancers	Officiating Superintendent, Punjab Lunatic Asylum	Lahore	12th October 1909	<i>Vice</i> Major G. F. W. Ewens, proceeding on leave
Lieut. Col. W. R. Clark, I M S	Civil Surgeon		Rawalpindi	12th October 1909 (afternoon)	On return from privilege leave relieving Senior Assistant Surgeon Har Narayan
Major P. St. C. More, I M S	Ditto		Attock	13th October 1909	On return from privilege leave relieving Assistant Surgeon Bukat Ali
Major A. W. T. Buist, I M S	Civil Surgeon, Dalhousie		Ambala	26th October 1909	Relieving Assistant Surgeon Firoz Din Mahroof

THE services of Captain C. C. ('') Shaw, M B, I M S, are replaced at the disposal of His Excellency the Commander in Chief

THE services of Captain J. S. O'Neill, I M S, are replaced at the disposal of His Excellency the Commander in Chief with effect from the 25th October 1909

CAPTAINS TO BE MAJORS

Dated 28th July 1909

John Walter Forbes Rait, M B
Eugene John O'Meara, F R C S
Spencer Hunt, M B
Henry Albert John Gidney, F R C S E

LIEUTENANTS TO BE CAPTAINS

Dated 1st September 1909

John Taylor, M B
Alexander Dion Stewart, M B
Claude Harold Cross
Robert Alexander Chambers, M B
John Morrison, M B

in place of Second Class Military Assistant Surgeon A. E. Hamlin transferred

HOME Department Notification No 348, dated the 4th November 1909, placing the services of Captain R. A. Chambers, M B, I M S, at the disposal of the Government of Bombay for employment in the Jail Department, is cancelled

CAPTAIN J. G. G. Swan, I M S, officiating Civil Surgeon Shahpur, has obtained privilege leave of absence for 2 months and 15 days combined with furlough on medical certificate for 1 year 9 months and 15 days, with effect from the 1st of November 1909, or the subsequent date from which he may have availed himself of it

THE services of Lieutenant Colonel C. M. Thompson, M B, I M S, are placed temporarily at the disposal of the Government of Madras

THE services of Captain N. M. Wilson, I M S, are replaced at the disposal of His Excellency the Commander in Chief in India

THE services of Lieutenant Colonel T Grainger, M.D., I.M.S., are replaced permanently at the disposal of His Excellency the Commander in Chief in India, with effect from the 2nd December 1909

THE services of Captain T C Rutherford M.D., I.M.S., are placed permanently at the disposal of the Hon'ble the Chief Commissioner of the Central Provinces

THERAPEUTIC NOTES

'DIGALEN' is a solution of amorphous digitoxin discovered by Prof Cloetta. This glucoside is extremely soluble in water. This solubility is the chief factor in ensuring rapid and prompt action on the one hand and in preventing cumulation on the other, as it favours rapid absorption and rapid elimination. Any patient who is given 'Digalen' will testify to the rapidity of absorption of the drug if he is instructed to take it on an empty stomach. After a few minutes he will say he "feels the effect," and that his "palpitations are better."

Cloetta and Fischer recovered one tenth of the amount injected into a rabbit four hours later from the urine (*Arch f experim Pathol & Pharmac*, Vol 54, p 307).

Whereas the crystalline form will be precipitated from its alcoholic solution by the action of the watery tissue juices, and remain an uncertain deposit of crude digitoxin in the tissues, beyond the range of any further outside influence, 'Digalen' will be wholly absorbed and as easily excreted, thus allowing of complete control and adjustment to the necessities of the case.

'Digalen' has another great advantage over other digitalis preparations, inasmuch as it can be injected intravenously with perfect safety. A powerful physiological response is obtained in from two to five minutes and this, as you will realize, may be the means of saving life. The technique of intravenous injection is extremely simple, the veins of the forearm usually being chosen. 'Digalen' is prepared by the Hoffman La Roche Chemical Works, London.

THE LONDON MEDICAL EXHIBITION

UNUSUAL interest attached to the exhibit of Messrs Burroughs, Wellcome & Co., at the recent London Medical Exhibition, owing to the number of new products shown, which are the outcome of chemical research and experiment.

Of these some of the most important in recent years are the arylarsenates, organic arsenical salts of the aromatic series, the use of which in the treatment of syphilis, malaria, trypanosomiasis and other protozoal diseases has been a marked feature of modern therapeutics.

Sodium Para aminophenylarsomate to which the short name of "Soamin" has been given is notable for its purity and stability and for its uniformity of action. It contains 22.8 per cent of arsenium (As), and is soluble in five parts of water. The solution may be sterilised by boiling without undergoing any chemical decomposition.

'Soamin' is used chiefly in the form of an intramuscular injection and has already acquired a great reputation as a specific for syphilis.

'Orsudan' another chemical substance which is the result of research in the chemical laboratories of Burroughs Wellcome & Co., was exhibited. It is distinguished from other arylarsenates by its greater solubility and by the fact that its solutions are stable. 'Orsudan' contains no less than 25.4 per cent of arsenium. The results of recent experiments suggest that it may prove of especial value in the treatment of malaria.

'Nizin' a zinc salt of sulphathic acid is a combination which has been shown by laboratory experiments to be superior as an antiseptic to other salts of zinc hitherto employed. It is stimulating readily soluble in water and as 'Soloid' nizin (gr 2 and gr 20, 0.15 gm and 1 gm) is very convenient for making extemporaneously antiseptic lotions for urethral and vaginal injections or for application to the eye in gonorrhoeal ophthalmia, conjunctivitis and other conditions.

Burroughs, Wellcome and Co. have always held a pioneer position in regard to the pharmacy of the thyroid gland. They have again taken a forward step of great importance by standardising 'Tabloid' thyroid gland by chemical means controlled by physiological test, so as to ensure that the desiccated gland substance, of which each product represents a definite amount contains not less than 0.2 per cent of iodine in organic combination.

The 'Wellcome' brand sera, vaccines and tuberculins which are prepared under the most careful and scientific supervision in the beautifully equipped Wellcome Physiological Research Laboratory were displayed on the same stand.

A diphtheria antitoxic serum high potency is now issued in hermetically sealed vials containing from one to five thousand Ehrlich Behring units.

Now that the utility of tuberculin for diagnosis has been demonstrated a renewed interest in this product is noticeable.

'Old tuberculin' Wellcome brand was shown in two strains human and bovine.

Tubercle Vaccine Wellcome Brand, a bacillary emulsion for treatment is also issued in two strengths, 1 and 5 mgm to 1 cc.

An interesting addition to the series of 'Vaporole' products was the pituitary extract (infundibular), this is a 20 per cent extract from the posterior lobe of the pituitary body and is recommended especially for hypodermic or intramuscular injection, as a general stimulant sensitive to its influence.

'TYRAMINE'

(TRADE MARK)

'TYRAMINE' presents in a state of purity the organic base phenylethylamine, which has recently been shown by researches at the 'Wellcome' Physiological Research Laboratories to be the chief active principle of aqueous extracts of ergot. Given hypodermically or by the mouth, 'Tyramine' produces a marked rise of blood pressure, with greatly improved vigour of the heart's action. 'Tyramine' may be administered in shock or collapse, and for producing contraction of the uterus post partum. 'Tabloid' Hypodermic 'Tyramine' 0.005 gramme is issued in tubes of 12.

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BOOKS, REPORTS, &c., RECEIVED —

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LETTERS, COMMUNICATIONS, &c., RECEIVED FROM —

- The Editor, "Practical Medicine," Delhi, Major W D Sutherland, I.M.S., Calcutta
- D J Asana Civil Surgeon, Godra Director, Sleeping Sickness Bureau London, Captain Lloyd, I.M.S., Calcutta, Lt Col D G Crawford, Hughly, Hasan, Pembroke College, Cambridge
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- Dr J F D Vello London, Messrs Burroughs & Wellcome, London
- The Hoffman—La Roche Chemical Works, London
- Dr J N Desai, Ichalkaraji, Asst Surgn H Basil Roair, I.M.S., Comet, Baghdad, Capt R M Garrison, I.M.S., Gilgit, Major R H Elliot, I.M.S., Madras, Major Gidney, I.M.S., Assam, Asst Surgn B S Bhattacharji, Jmalpur, Col MacTaggart, I.M.S., Lucknow, Capt McKechnie, I.M.S. Etawah

Original Articles.

CIRCULATORY DISEASES IN INDIA *

By F J DRURY, M.B.,

LT COL., I.M.S.,

Officiating Principal, Medical College, Calcutta

WITH a view to opening this discussion on Circulatory Diseases in India, I have had prepared an analysis of the cases admitted into the Medical College Hospital during a period of four years, *viz.*, from June 1905 till June 1909

This analysis includes 319 cases of various forms of disease, clinically diagnosed as *heart disease*, among which the death-rate was 71 or 22.25 per cent

It has always seemed to me the question of the ætiology of these heart diseases is an obscure one in India, and as you will see the factors which stand out so prominently as causes in European tables relating to heart diseases fall somewhat into the background in these tables of mine. On the other hand, so far as my experience teaches me, the ætiology of diseases of the vascular system—by which is generally meant the arteries—conforms very much to what is given in the statistics of Europe and America

Accordingly the figures which I am now bringing before you are mainly intended to give us some facts from which to draw our own conclusions regarding the ætiology of diseases of the heart in India, and I hope that these figures, together with the information which Major Rogers and Capt Megaw will give us, will form a text for an interesting discussion

But in the first place I ought honestly to warn you against placing too much value on these figures. I know that they have been carefully prepared according to our hospital returns, but apart from the margin which we must allow for errors or omissions in clinical diagnosis, if we place too much confidence in the figures, we are likely to be led into various fallacies, which I shall endeavour to point out as I go on

The first point that strikes us in Table I—the classification of all the cases according to clinical diagnosis—is the large proportion set down as valvular disease, 93 per cent. The distribution of these valvular diseases does not I think, call for much comment—diseases of the mitral valve as usual take the lion's share—63 per cent of the total heart diseases, but otherwise the figures differ somewhat from those of the Royal Infirmary of Edinburgh, in which, out of 1,914 cases of valvular diseases of the heart we find 73 per cent aortic regurgitation alone and 17.6 per cent aortic regurgitation combined

with mitral disease, regarding this combination, however, we must admit that it is always a difficult question to decide whether the two defects are the result of the same cause or whether the mitral defect, especially regurgitation, is secondary to the aortic regurgitation. Another point which I should notice in this table is, that there is only *one* case shown as pericarditis, which might lead us to conclude that pericarditis is a very uncommon disease here, but I would like to point out that it is not a very uncommon complication of lobar pneumonia, especially when it affects the upper lobes of the lungs, and that in such instances the cases are shown in our returns under the original disease, *viz.*, pneumonia

I look upon Table II as practically valueless, as it only shows the age of the patients at the time of admission and not the age at which the disease began. Consequently, for instance, a patient might be admitted at the age of 40 in whom the disease began at the age of, say 12. Moreover, I think, the people of Bengal are, as a rule, very unwilling to send their children into hospital, and therefore, the figures 9.4 per cent for persons below 17 years are necessarily fallacious if we look upon them as indicating the incidence of heart disease in young persons. As a matter of fact, I think that valvular disease of the heart can be endured for years in many instances, especially in the case of the long-suffering, lower-class Bengali, without bringing about symptoms of sufficient urgency to induce the patient to seek admission into hospital

Table III—incidence according to sex—is also liable to mislead us, and that for two reasons: (1) The respectable Bengali female does not like to come into hospital, and we must therefore miss many cases of heart disease occurring among females, and (2) the number of medical beds allotted to females in the Medical College Hospital is much smaller than the number allotted to males, the proportion being about 1 to 3. So that there is an obvious fallacy in the hospital statistics in so far as the incidence of heart diseases in the two sexes is concerned. Taking the cases among Europeans alone (including Eurasians), there is almost the same disparity between the sexes: 72.81 per cent males and 27.18 per cent females, but the proportion of medical beds in the hospital for the two sexes is also about 3 to 1

Table IV—distribution of heart diseases amongst the different races—would appear to indicate that the incidence is much greater in Europeans than in Indians, for less than half the number of beds in our hospital are available for Europeans as compared with Indians, and of course, there is a very great disparity between the numbers of the two in the general population of Calcutta. The proportion of European cases to Hindus is about 4 to 5 in these tables, of Europeans to Mahomedans almost 2 to 1

* Read before the Medical Section of the Asiatic Society, Bengal, at the January Meeting

this applies to all the cases of heart disease taken together, but on looking into the figures for the different classes of heart disease we find that aortic cases show a still greater preponderance among Europeans.

In Table V we have a list of the previous complaints, from which patients have suffered and which might possibly be set down as causes of their heart affections. Looking at these figures, we notice that the first place is given to syphilis 13.47 per cent, the second to malaria 9.40 per cent, the third, *viz.*, 8.46 per cent, to rheumatic fever, "rheumatism" and alcohol, and the fourth to excessive manual labour 4.07 per cent, these six added together form 52.32 per cent of the lot. But the question will naturally arise in our minds—can we accept all these factors as causes? I do not think we can. Take for instance, malaria, which has the second highest figure. I do not think we can accept this as a very important cause, as it is probable that very few of these 319 patients had not suffered more or less from malaria. The figure for syphilis is about what we might expect it to be. But I am very much surprised to see the low figure for rheumatic affections, *viz.*, 16.92 per cent of the whole.

I should say, however, that the history we get from the patients of their previous complaints is, in a large proportion of cases, a very unreliable one, most of the patients being ignorant, not taking an intelligent interest in themselves, their ailments, nor understanding the importance of their previous history to us. I have already referred to the long-suffering disposition of the lower class Bengali, and I think they are very likely to overlook or forget slight ailments, such as joint pains with moderate fever—in short, a rheumatic attack, such as we have reason to believe from the statistics of other countries may be the precursor of rheumatic endocarditis. I think it was English physicians who first pointed out that very frequently rheumatic attacks, apparently trivial so far as the joints were concerned, occurring especially in children, are in reality very serious, because they are likely to result in endocarditis. I have reason to believe that this form of rheumatic attack is not uncommon in India among the children of Europeans, Eurasians and Indians, and I believe it is often passed unnoticed by their parents. I admit, however, that I have no absolute proof of this. I must further admit that though I always, in the case of children in whom there is any suspicion of rheumatism, seek for those subcutaneous fibrous nodules about the joints on which so much stress is laid by Barlow and Chandle in connection with apparently slight rheumatic attacks, yet so far as I can remember I have never found them in a single case in India. Believing then that these apparently slight attacks of rheumatic fever are not uncommon among the people living in India, I do not think that rheumatism has the place it

deserves in this list of possible causes of heart disease.

In most other countries, endocarditis following rheumatic fever is recognized as the chief cause of chronic heart disease, the proportion being generally 55–60 per cent, *eg.*, in the Leipzig Klinik the figure is put down as 58.5 per cent out of a total of 970 cases of chronic heart disease. I am aware that it is generally believed that rheumatic fever is an uncommon affection in India, and that, therefore, it is unlikely to be an important factor in the causation of heart disease. But I question the correctness of this view, and I believe rheumatic fever, especially in its slighter manifestations, is not uncommon among Indian peoples. I know that Sir Gerald Bomford and the late Dr. McConnell held this view, and I believe, it is shared by Col. Lukis and Col. Harris, all of whom we must look upon as very high authorities. I do not believe that the severe typical attacks of rheumatic fever are common here, those with high fever tending to hyperpyrexia, copious sweats and severe inflammation attacking most of the joints one after the other, if they were common, we should see more of them. But we see in the hospital a fair number of less typical cases, and sometimes we find evidence of the development of endocarditis while the patient is under treatment. Another point upon which I would like to lay some stress is this—that in the case of patients under treatment in hospital for chronic valvular disease, especially mitral, it is a very common event during the course of their sojourn in hospital for them to develop attacks of pain in various joints, this I look upon to be manifestly of a rheumatic nature and to be evidence of their having gone through previous attacks of rheumatism.

I thought that a table made out for European cases in the hospital might bring out rheumatic affections into greater prominence as a cause, but such is not the case, or only so to a very slight degree. In this table rheumatism and rheumatic fever together only give 20.38 per cent. In 22.33 per cent of the cases among Europeans nothing likely was found for the heart disease. Alcohol 14.56 per cent, syphilis 12.62 per cent, and excessive manual labour have fairly high places.

I must confess, however, that I cannot claim very much support from the *post-mortem* room for my plea to accord to rheumatism a more important place in the list of causes of chronic heart disease. It is a fact that the presence of the small warty vegetation on the cardiac valves, which are looked upon as so characteristic of rheumatic endocarditis, though occasionally observed, is of rare occurrence. But in reply to this I would observe that we seldom get patients in the hospital with evidence of recent heart disease and still more rarely do such cases come to the *post-mortem* table. On the other hand, I think, the appearances which

we find in chronic cardiac cases, thickened, distorted, crumpled and sometimes calcareous mitral valves with an opaque, thickened endocardium over the rest of the cavities of the heart—I think, these appearances are not incompatible with the supposition that this chronic endocarditis is the result of an acute endocarditis which had its origin in rheumatism. For in any given case of chronic endocarditis there are not usually any special appearances to show its origin, with the exception of cases of syphilitic origin in which there are often other manifest syphilitic lesions. I have confined my observations to cases of heart disease in general, and have not said anything regarding the different classes of heart disease as I have arranged them. I have here figures for these different classes, but will not delay you with any special remarks. I only wish to point out that from these figures it appears that rheumatic affections are more prominent as causes of mitral diseases and syphilis is more prominent as a cause of aortic diseases. In concluding these few remarks I would like to say that we are all greatly indebted to Asst-Surgeon Bamandas Mukherji for the trouble he has taken in compiling all these figures.

DISEASES OF THE HEART

Analysis of cases admitted to the Medical College Hospital, Calcutta, from June 1905 to June 1909 —

Total cases admitted	319
Total deaths	71
Case mortality	22.25%

Classification of cases —

I On a basis of clinical diagnosis—

	Total cases	Per cent
(1) Mitral Regurgitation	121	37.93
(2) „ Stenosis	32	10.03
(3) „ Double	48	15.04
(4) Aortic Regurgitation	29	9.09
(5) „ Stenosis	2	0.62
(6) „ Double	27	8.46
(7) Double Aortic with Mitral Regurgitation	20	6.26
(8) Aortic and Mitral Regurgitation	18	5.64
(9) Myocarditis	17	5.32
(10) Infective Endocarditis	3	0.92
(11) Pericarditis	1	0.31
(12) Congenital Disease	1	0.31
	319	99.55
		99.84

II. According to age—

	Total cases	Per cent
Below 17	30	9.4
17 to 45	184	57.68
46 and upwards	105	32.91

III According to sex—

Male	231	72.41
Female	88	27.58

IV According to race—

Mahomedans	58	18.18
Europeans & Eurasians	103	32.28

	Total cases	Per cent
Hindus	126	39.49
Native Christians	23	7.21
Other races	9	2.82

V With a previous history of—

Rheumatic Fever	27	8.46
"Rheumatism"	27	8.46
Alcohol	27	8.46
Syphilis	43	13.47
Gonorrhoea	10	3.13
Small pox	9	2.82
Measles	3	.94
Enteric Fever	5	1.56
Pneumonia	2	.62
Dysentery	5	1.56
Cholera	1	.31
Gout	1	.31
Chorea	1	.31
Epilepsy	1	.31
Bright's Disease	6	1.88
Malarial Fever	30	9.4
Asthma & Chronic Bronchitis	3	.94
Excessive manual labour	13	4.07
Flute player	1	.31
Trauma on the Chest	2	.62
Family History	1	.31

EUROPEANS AND EURASIANS.

Total cases 103

Classified according to—

I Sex—

	Total cases	Per cent
Males	75	72.81
Females	28	27.18

II Age—

Below 17	5	4.85
17 to 45	54	52.42
46 and upwards	44	42.71

III Previous history of—

Alcohol	15	14.56
Syphilis	13	12.62
Rheumatism	12	11.65
Rheumatic Fever	9	8.73
Excessive manual labour	10	9.70
Enteric Fever	3	2.91
Small pox	3	2.91
Gonorrhoea	3	2.91
Trauma on Chest	1	.97
Fever and other debilitating conditions	11	10.68
Nothing special	23	22.33

IV The kind of cardiac lesion—

54 { Mitral Regurgitation	35	33.97
„ Stenosis	9	8.73
„ Double	10	9.70
26 { Aortic Regurgitation	13	12.62
„ Stenosis	1	0.97
11 { Double Aortic	12	11.65
„ Double Aortic cum M R	6	5.82
„ Aortic cum M R	5	4.85
Myocarditis	10	9.70
Infected Endocarditis	1	0.97
Pericarditis	1	0.97

Mitral Regurgitation—

121 cases admitted

Age—

Below 17	7	5.78
17 to 45	67	55.37
46 and upwards	47	38.84

	Total cases	Per cent
Sex—		
Male	70	57.85
Female	51	42.14
Race—		
Mahomedans	24	19.83
Europeans and Eurasians	35	28.92
Hindus	52	42.97
Native Christians	8	6.61
Other races	2	1.65
Death	26	21.48
History of—		
Rheumatic Fever	18	14.87
"Rheumatism"	8	6.61
Syphilis	5	4.13
Bright's Disease	6	4.95
Enteric Fever	2	1.65
Small pox	5	4.13
Dysentery	4	3.3
Gonorrhœa	2	1.65
Malarial Fever	11	9.09
Alcohol	3	2.47
Cholera	1	.82
Asthma and Chronic Bronchitis	3	2.47
Flute player	1	.82
Trauma on the Chest	1	.82

NB—Hemiplegia and aphasia with history of syphilis present in one case
Signs of P P present in two cases

Mitral Stenosis—

32 cases admitted

	Total cases	Per cent
Age—		
Below 17	10	31.25
17 to 45	21	65.62
46 and upwards	1	3.12
Sex—		
Male	23	71.87
Female	9	28.12
Race—		
Mahomedans	6	18.75
European and Eurasian	9	28.12
Hindus	16	50
Native Christian	1	3.12
History—		
Rheumatic Fever	5	15.62
"Rheumatism"	4	12.5
Enteric Fever	2	6.25
Measles	1	3.12
Small pox	3	9.37
Gonorrhœa	2	6.25
Malaria	4	12.5
Death	3	9.37

Double Mitral—

48 cases admitted

Age—		
Below 17	7	14.58
17 to 45	38	79.16
46 and upwards	3	6.25

Out of 201 cases of Mitral disease, history of rheumatic affection present in 21.89 per cent cases

	Total cases	Per cent
Sex—		
Male	35	32.91
Female	13	27.08

	Total cases	Per cent
Race—		
Mahomedans	11	22.91
Europeans & Eurasians	10	20.83
Hindus	25	52.08
Native Christians	2	4.16
History—		
Rheumatic Fever	2	4.16
"Rheumatism"	7	14.58
Measles	2	4.16
Pneumonia	1	2.08
Gonorrhœa	2	4.16
Syphilis	2	4.16
Malarial Fever	5	10.41
Excessive manual labour	1	2.08

Aortic Regurgitation—

29 cases admitted

Age—		
Below 17	3	10.34
17 to 45	12	41.37
46 and upwards	14	48.27
Sex—		
Male	27	93.1
Female	2	6.89
Race—		
Mahomedans	3	10.34
Europeans & Eurasians	13	44.82
Hindus	8	27.58
Native Christians	4	13.79
Other races	1	3.44
History—		
"Rheumatism"	3	10.34
Syphilis	7	24.13
Alcohol	7	24.13
Excessive manual labour	1	3.44
Gonorrhœa	1	3.44
Death	7	24.13

Aortic Stenosis—

2 cases admitted

Age—		
Below 17	0	
17 to 45	1	50
46 and upwards	1	50
Sex—		
Male	2	100
Female	0	
Race—		
Hindu	1	50
European	1	50
History—		
Syphilis	2	100
Death	0	

Double Aortic with secondary Mitral Regurgitation—

20 cases

	Total cases	Per cent
Age—		
Below 17	1	5
17 to 45	12	60
46 and upwards	7	35
Sex—		
Male	18	90
Female	2	10

Race—	Total cases	Per cent
Mahomedans	5	25
Europeans & Eurasians	6	30
Hindus	7	35
Native Christians	2	10
History—		
“ Rheumatism ”	3	15
Syphilis	5	25
Excessive manual labour.	5	25
Gonorrhœa	1	5
Typhoid	1	5
Pneumonia	1	5
Alcohol	1	5
Malarial Fever	1	5
Death	5	25
Double Aortic—	27 cases	
Age—		
Below 17	0	
17 to 45	10	37 03
46 and upwards	17	62 96
Sex—		
Male	24	88 88
Female	3	11 11
Race—		
Mahomedans	3	11 11
Europeans and Eurasians	12	44 44
Hindus	10	37 03
Native Christians	2	7 4
History—		
“ Rheumatism ”	1	3 7
Syphilis	7	25 92
Gout	1	3 7
Excessive manual labour	5	18 51
Death	7	25 92
Aortic and Mitral Regurgitation—	18 cases	
Age—		
Below 17	1	5 55
17 to 45	14	77 77
46 and upwards	3	16 66
Sex—		
Male	17	94 44
Female	1	5 55
Race—		
Mahomedans	5	27 77
Europeans and Eurasians	5	27 77
Hindus	6	33 33
Other races	2	11 11
History—		
Syphilis	7	38 88
“ Rheumatism ”	2	11 11
Death	6	33 33
Myocarditis—	17 cases	
Age—		
Below 17	0	
17 to 45	5	29 41
46 and upwards	12	70 58
Sex—		
Male	11	64 7
Female	3	35 29

Race—	Total cases	Per cent
Mahomedans	2	11 76
Europeans and Eurasians	10	58 82
Hindus	4	23 52
Native Christian	1	5 88
History—		
Syphilis	1	5 88
Gonorrhœa	1	5 88
Small pox	1	5 88
Fever	1	5 88
Alcohol	1	5 88
Excessive manual labour	3	17 64
Epilepsy	1	5 88
Death	8	47 05

Infective Endocarditis—

3 cases

Age—		
Below 17	0	..
17 to 45	3	1 0
46 and upwards	0	..

Sex—		
Male	3	1 0
Female	0	..

Race—		
Hindu	1	33 3
Eurasian	1	33 33
Native Christian	1	33 33

History—		
Gonorrhœa	1	33 33
Malignant Malaria	1	33 33
High Fever	1	33 33
Death	2	66 66

Congenital Heart—

1 case

Hindu—Male, aged 23.

Pericarditis—

1 case

European Female, aged 20

ON THE OCCURRENCE OF AN EPIZOOTIC OF FOWL SEPTICÆMIA IN CALCUTTA AND PROPHYLACTIC TREATMENT OF THE DISEASE BY VACCINE *

BY GOPAL CHANDRA CHATTERJEE, M B,

Assistant Professor of Pathology, Medical College, Calcutta

IN Europe this disease is a well-known one and occurrence of fatal epizootics among fowls have been noticed from ancient times. Of the two types of the disease occurring in these animals, one is designated fowl septicæmia and the other fowl cholera. The organism of fowl cholera has the distinction of being the first to be discovered out of the group of microorganisms which are now known as *Pasteurella*, among which are included the organism of hæmorrhagic septicæmia of horses, organism of swine

* Read before the Medical Section of the Asiatic Society, Bengal, at the February meeting, but received for publication in November, 1880

septicæmia, the bacillus ovisepticus of birds and several others pathogenic bacilli in lower animals

There are recorded in the Veterinary Journals occurrences of epidemics of Pasturellosis among horses, elephants and sheep. No reference can, however, be found to the occurrence of fowl septicæmia or fowl cholera in Indian Veterinary Journals

Starting from July 1909 a fairly widespread epizootic of a peculiar disease followed by death occurred among the fowls bought from the Calcutta market for serological experiments conducted by Major Sutherland, I M S, who kindly placed at my disposal the affected animals to find out the cause of the disease. After a few failures, a bacillus was separated which was found to possess marked pathogenic properties

Besides studying the organism for the purpose of identification, chief attention was given to discover, if possible, a prophylactic method of treatment of fowls, as these animals were very valuable, having been found to furnish the strongest precipitin sera. It became all the more imperative to do this as all attempts to check the epidemic by isolation and disinfection by antiseptics had failed

Symptoms of the disease—As a rule most of the animals showed in the beginning some inflammation of the conjunctivæ, though in later epidemics this symptom was found to be absent. The fowl becomes drowsy and lethargic and dies within four or five days

Examinations of the discharge from the conjunctiva show numerous Gram negative, remarkably small organism, which look like micro-cocci. Mixed with these are a few Gram positive cocci (Staphylococci). No definite bipolar staining could be made out

Post-mortem examination of the animals revealed no particular change except a slight reddening of the organs

In agar the organism grows in a thin translucent layer, the water of condensation remaining clear. The growth is rather slow, full growth taking place in 48 hours. Smear preparation from the culture shows very minute Gram negative organisms. Smear preparation from the culture mixed with a growth from a culture of staphylococcus, show that these micro-organisms are at least one-sixth the size of a staphylococcus

The organisms are not motile and no flagellum could be made out

Culture in broth—A bouillon flask was inoculated with the bacillus and left undisturbed for one week. It showed uniform cloudiness of the medium with a thin pellicle on the surface, which has a tendency to grow on the sides of the flask

No stalactite growth could be seen in "ghee broth"

Gelatine is not liquefied, a thin growth takes place along the needle track. In litmus milk no change is produced

No change is seen in the several sugar solutions which were tried (glucose, saccharose, mannite, raffinose, lactose, dulcitol). No growth takes place in potato

Pathogenic property—A loopful of the agar culture inoculated into a guinea-pig killed it in 24 hours, the autopsy showing purulent peritonitis, marked reddening of the peritoneal coat of the intestine, purulent pericarditis and pleurisy. All the exudations showed numerous micro-organisms like the one inoculated. No definite bipolar staining could be made out. On inoculating another guinea-pig from the culture made from the heart blood of the first animal the former died in twelve hours. The exudation in the peritoneal cavity is not so marked as in the first. A third animal inoculated from the culture from the second animal died within six hours. No exudation was found in the cavities. Culture from the heart blood showed scattered colonies

The marked pathogenic property of the organism is evidenced from the following experiment—a loopful from an agar culture made after the third passage was mixed with 20 c c of water. Half a c c of this was injected into a guinea-pig. It died within eight hours. The toxins separated from 48 hours' growth in broth after passing through Berkefeld filter produced no pathogenic symptoms in a guinea-pig. A vaccine was prepared in the following way—a 250 c c bouillon flask was inoculated with the organism. After 24 hours' incubation at 37° C, the flask was heated to 56° C for half an hour. One c c of this broth was inoculated into a guinea-pig. After four days a dose of the living culture (one loopful of the agar culture diluted in 20 c c of salt solution, of this 1 c c being used) was injected. The animal remained alive. A loopful of the agar culture without dilution was found, however, to kill it

Twenty fowls, which were subsequently used for obtaining precipitin serum, were each inoculated with 1 c c of the vaccine. Of the 20 vaccinated 4 died of the disease after three weeks. Before the method of vaccination was tried every animal died after receiving the third dose of the material which was used for obtaining precipitin sera

Further experiments in this line could not be done as these serological experiments have been stopped since the beginning of November for the time being. The culture, however, made use of in the above experiments was forwarded by Major Sutherland, I M S, to the Veterinary College, Belgachia, for further experimentation

MEDICO LEGAL PRACTICE IN THE MOFUSSIL

A COMPILATION BY W. D. SUTHERLAND M.D.,

MAJOR, I.M.S.

WITH a view to ascertain the value of the judicial autopsies performed in the mofussil, I have taken the records of those made in the Saugor district head quarters from the 1st January 1900 to the end of October 1908, as a fairly representative series, and give here the results of my collation of the facts observed.

The total number of bodies examined was 295, including 25 corpses of infants, 2 fetuses, and 3 collections of human bones.

No definite opinion could be given in the case of the fetuses, nor could more than an opinion as to sex and age be given in the case of the bones. In one of these latter cases no opinion was given as to the cause of death, which was alleged to have been an axe blow on the head, although the skull was found to have been splintered.

Owing to the advanced state of decomposition in which the corpse was at the time of examination, no definite opinion as to the cause of death, save that it had not been caused by fracture of the skull, rupture of the spleen, etc., could be given in 23 cases, but light was thrown on the following cases notwithstanding—

(a) A woman was said to have been brutally beaten by her husband and to have died soon afterwards. At the autopsy it was found that there was no sign of bruising save a slight bruise on one temple, nor any other sign of violence, but that the spleen, liver and kidneys were diseased.

(b) A woman was said to have had her neck wrenched and twisted, and then to have been thrown into a well, in which her body was found. No signs of injury to the neck, and no signs of drowning were found at the autopsy. The stomach was found to be full of food, and it was quite possible that this woman fainted and fell into the well.

In all 25 cases of alleged infanticide were examined. No definite opinion, save as to the fact of the infant having breathed, could be given in ten of these cases, while in three cases no opinion at all could be given, as the state of the corpse precluded this.

In two cases death had been due to asphyxia, produced by forcible compression of the mouth and nose. One infant had been drowned, one had had its chest compressed with such violence that the entire chest wall was bruised and one of the ribs had been broken, another had died as the result of head injuries received during delayed labour, while another had died to death from a severed umbilical cord.

In another case the cause of death was asphyxia, due to the fauces and larynx having been tightly packed with cotton-wool, of which four large pledgets were found at the autopsy. The defence alleged that the cotton-wool must have been inspired by the infant at the moment of birth, the mother

having been delivered on a torn quilt. The Civil Surgeon stated his opinion to be that this was quite impossible, as the pledgets were so tightly wedged into the air passages.

In one case mere neglect to protect the infant against cold was held to have caused death. If all would-not-be mothers were content to adopt this simple means of relieving themselves of the presence of the living proof of their infringement of social conventions, there would be less work for the Criminal Courts to do in this country, for, ingenious at making up a specious defence as the people are, conviction of a neglectful mother would be well nigh impossible of attainment.

As every villager carries a bamboo staff, or an axe, and is ever ready to use these means of offence, which he can wield with skill in a quarrel, it is not to be wondered at that cases of murder are common.

Axe-wounds of the head and neck caused the death of 20 men and four women. In the case of the women, in three instances it was the husband who thus punished an erring wife, in the fourth case it was the woman's brother who resented the dishonour done to the family name.

It is of interest to note that in one case in which a man received an axe-blow on the back of the head, the weapon cutting through the bone, and penetrating deeply into the brain, death, which was due to inflammation of the brain, occurred on the *fifteenth* day after the injury.

Fourteen men and three women were murdered by having their skulls smashed by *lathi*-blows, and one man whose nasal bones were fractured by a *lathi*-blow—no other injury having been received—died immediately after being struck, probably from syncope, as his heart was found to have undergone fatty degeneration.

Six men had their skulls fractured by being pounded with heavy stones, and one man sustained fracture of the skull from being thrown down a well, he having landed on his head on a projecting stone.

In another case a woman's body was found in a well, but on examination it was discovered that the malai, temporal and parietal bones on the left side, as well as the lower jaw had been fractured, and thus the theory—founded on the absence of the silver ornaments which she was known to wear—that she had met with foul play, was confirmed.

In another case the body of a man was found under some large stones in the jungle. The entire face-bones were absent, and from the appearances it was believed that they had been smashed. Two ribs on the right side and three on the left side were broken, as also the sphenoid and frontal bones. The theory raised by the defence in this case was that the deceased had been shot by accident by his companions, who had then smashed in the face to prevent identification of the body, and had piled stones on it to hide it, thus causing all the injuries found. No trace of a bullet wound was found, but, for want of sufficient evidence implicating them, the accused persons got off.

A child was struck on the head by a log which had fallen off a passing cart. The base of the skull was fractured right across from ear to ear, as well as the right parietal bone.

Four men were murdered by being shot. In one case a village watchman who had come to the police station-house to make a report was wounded in the abdomen by buckshot, of which one had severed a mesenteric vessel. It was alleged that the fatal shot had been fired by a constable who had run amok, but the High Court held that it was quite possible that the wounds had been accidentally inflicted by the other constables, when they were replying to the fire of their assailant. In another case a man shot two men, cut down a third with a sword, and smashed in the skull of a fourth with a large stone, and then, after vainly seeking a fifth enemy, gave himself up. Three women had their throats cut. In the case of two this was done as a punishment for sexual laxity, by the husband and the father-in-law respectively. The father-in-law then cut his own throat, but in his defence alleged (1) that the confession made by him, and taken down in the vernacular by a European Magistrate was worthless, since the Magistrate could not have understood what he was saying, his throat having been cut, and (2) that his throat had been cut by some person unknown. This is a fair specimen of the kind of defence that is alleged to be the essence of truth by the accused, when his case comes before the Sessions Court.

Rupture of the Spleen occurred in 27 cases. To give an idea of the frequency with which an enlarged spleen is met with in the Saugor district, I may mention that of 250 bodies of adults examined, 119—63 men and 56 women—were found to have enlarged spleens, and the judicial autopsies may be taken to give a good index of the general condition of the people's health.

Of these 27 cases of ruptured spleen 13 were men and 14 were women. In two cases the viscus was ruptured in five places, in one case in three places, in three cases in two places, and in two cases the rupture was Y-shaped, while in two cases it extended practically through the whole thickness of the organ. In most of these cases, the spleen was enlarged to at least twice its normal size. In the majority of the cases of ruptured spleen the alleged cause of death was a beating inflicted with a bamboo staff. In one case a woman was kicked by her husband, fell down and died in 10 hours, it was said. As the rupture had nearly severed the spleen in two it is evident that she could not have lived for long after it had occurred. In three cases no external wound nor bruise, nor any bruising of the tissues of the abdominal wall could be found—an additional proof, if proof were needed, of the extreme readiness with which an enlarged spleen may undergo rupture.

In one case a man was kicked in the abdomen and complained of pain in that region. For this he was treated at the local dispensary, where he lay for a week as an in-patient. On his discharge he return-

ed to his village, where he died on the 47th day after he had been kicked. At the autopsy two rents in the substance of the spleen were found. These had become sealed by plastic inflammation, and the cause of death was found to have been pneumonia of the base of the right lung. In the abdominal cavity were some four ounces of blood, which had evidently escaped from the rents in the spleen.

Rupture of the liver was observed in three cases. In one of these, although seven ribs had been broken on the left side, and the spleen was twice the normal size, no injury of this viscus was detected. The second case was that of a man who had been set upon by seven men, and so thoroughly beaten that he had fractures of the 2nd, 3rd, and 4th dorsal vertebral transverse processes, and of six ribs on the right side. In the third case the whole front of the chest was covered with bruises, but no ribs had been broken, nor had the spleen, which was not enlarged, been injured although there was a large bruise of the abdominal wall in the splenic region. The liver, however, had been ruptured in two places in this case.

A blow on the genitals was the cause of death in a case where a man was kicked in the genitals and died soon afterwards, great extravasation of blood in the scrotal tissues being found at the autopsy.

Stabbing was the cause of death in two cases, in one of which a jealous husband stabbed his wife in the abdomen, and then cut off a piece, 2 feet long, of the colon that had prolapsed through the wound, which had been made with a slashing motion, and therefore gaped wider than an ordinary stab wound does.

Suicide was committed by 11 men and 34 women.

One man shot himself after shooting another. One man cut his throat after beating his wife to death with his staff. Twenty women drowned themselves. In seven cases they took one, and in two cases two, of their children to accompany them into the Beyond. In one of these cases one of the two children was saved, in another case the husband saved the child, but doubtless for reasons—did not succeed in saving his wife. In all these cases a domestic quarrel was the motive of the unmotherly conduct. One man hanged himself to the beam overhanging a well, and, as the rope gave way, he fell into the water and was drowned. One woman had been caught in *flagrante delicto*, and another was disgusted at her husband having taken a second wife. Six men and ten women hanged themselves. In one of these cases the suicide was cut down, but died on the following day. One body was found hanging from a rafter with the knees touching the ground, another hanging from a branch of a tree with the feet touching the ground, while a third was found seated on a cot, with a rope round the neck which was attached to one of the rafters. One man and one woman were said to have been prompted to hang them-

selves by chagrin at being accused of theft. In two cases the cause of the *tadum utae* was apparently long standing abdominal disease, with its attendant pain.

Suicide by poison was the mode of death adopted by three men and four women. As was to be expected opium was the poison chosen.

Multiple injuries were found in the following cases —

(a) A woman, whom her husband suspected of infidelity, was severely beaten by him, and then had both her feet much burnt, probably with a view to keep her at home. She aborted soon after receiving these injuries, and later on died. Her body was found to be covered with bruises, both feet had evidently been severely burnt, and there was an ulceration of the duodenum, as the sequel of this. (b) A man took part in a riot and was severely beaten, dying soon afterwards. It was found that he had sustained a fracture of the right temporal bone, which had caused intracranial hæmorrhage from the middle meningeal artery, and it was observed that he had had a gastric ulcer, which had perforated and caused the peritoneum to be deluged with the contents of the stomach during life.

Duodenal ulceration was also found in the case of a woman who had complained of pain in the abdomen and diarrhoea, and was said to have died suddenly. The bowel was in a very diseased condition with peritonitis. No signs indicative of poisoning or other cause of death were found.

An old man had had his upper arm broken by a *lathi*-blow about a fortnight before his death. He had complained of some discomfort in the abdomen, and diarrhoea for some days, and naturally the case was held by his relatives to warrant police interference. At the autopsy *acute enteritis* was found, a condition from which an old and feeble man was not likely to recover, even had his arm, which showed a good deal of callus, not been broken.

Sunstroke was considered to have been the cause of death in three cases, in one of which the police report made mention of several wounds, which were found to be really abrasions of the cuticle due to decomposition.

Acute malarial infection was found to have been the cause of death in the following cases — (a) A man was alleged to have suffered from fever for some time, but to have died after having had his face slapped. (b) Another man was alleged to have been thrashed by two men shortly before his death. A woman was said to have been severely beaten by her husband, against whom she had obtained a maintenance order. Her brother called the attention of the head constable to a "bleeding wound of the head" and with the best will in the world the constable entered this in his report. (c) At the autopsy there was no wound found, its existence having been invented by the bereaved brother, as proof positive of the beating which he said his sister had received.

Pneumonia was found to have caused death in 11 cases—8 men and 3 women. Of these the important cases were as follows — (a) One old woman was said to have been beaten by her husband, receiving a blow on the left side, and to have died very soon afterwards. It was found that her spleen was enlarged but uninjured, and that she had old disease of the aortic valves, and pneumonia. (b) One man was alleged to have been poisoned by an old female quack who had been treating him for venereal disease. (c) One woman was supposed to have committed suicide by poison after a quarrel with her husband. (d) A child was said to have received fatal injuries in a quarrel that had taken place between its mother, who had been holding it in her arms, and another woman.

Snake-bite was held to have been the probable cause of death of three women, on whose bodies some local oedema of a hand or foot was found, with much extravasation of blood in the underlying tissue, and great congestion of the lungs and brain. In none of these cases could definite fang marks be found. One man, who was said to have been bitten by a snake, was found to show no sign of such an injury, but to have markedly incompetent tricuspid and mitral valves.

Rupture of an aortic aneurysm, rupture of the coronary veins, and rupture of a fatty-degenerated right auricle were the respective causes of death, in three cases in which the suddenness of the end aroused suspicion of foul play.

Septic laryngitis and *septic pleurisy* following bruising of the face, the contused tissues having broken down, were the cause of death in two cases.

Meningitis caused death in five cases. In one of these a man had had hot ashes thrown in his face, and had suffered from severe burns of his eyes, with panophthalmitis, leading to meningitis and abscess-formation in the lungs. A woman, irritated at her child's constant screaming, slapped it. It died soon afterwards, and at the autopsy was found to have had tubercular meningitis. The constant screaming as well as the death was thus quite easily accounted for.

Intracranial hæmorrhage was found to have occurred without obvious cause in the following cases — (a) A boy was said to have been struck on the side of the head by a fragment of tile slung by a birdscarer, and to have died soon afterwards. It was found that he had sustained a slight bruise of the temporal region, with no trace of fracture of the skull, but the whole of the left side of the brain was covered with blood-clot. (b) A man was caught stealing mangoes and beaten by the owner of the grove, it was said. He died soon after the alleged beating, and at the autopsy it was found that, in addition to a slight bruise of the abdomen, there was a large blood-clot covering the cerebrum and cerebellum. He had had pleurisy some considerable time before death. Here again there was no sign of fracture of the skull. (c) A woman had

had a long-sustained altercation with her husband *coram populo*, and was seen to stagger and fall into the roadway from the doorstep. Of course it was alleged that she had been kicked, and that this was the cause of her speedy death. She was found to have slight bruises on the back, no fracture of any bone, no rupture of the spleen, but the left cerebral hemisphere was covered with blood-clot.

Murder by poison was suspected to have been done in eight cases, not including three in which death was found to have been caused by an overdose of alcohol, nor one case in which the symptoms pointed to gastro-enteritis, that had lasted for two days, and death occurred from asphyxia, due to the inspiration of vomit by the patient.

AN EXTRAORDINARY SERIES OF OUTBREAKS OF PLAGUE IN CAPE COLONY, DUE TO CASE TO CASE INFECTION

By E. N. THORNTON, M.R.C.S. (ENG.), I.R.C.P. (LOND.),

Additional Medical Officer, Cape Colony

[Late Plague Medical Officer, Punjab, etc.]

(Continued from page 14)

In the previous part of this article the infection of seven isolated cases has been traced from one to another. The contacts with case 6 have not been fully dealt with, it is therefore necessary to trace how the infection was spread further.

It was hoped that the outbreak in the district was now at an end, but in view of the number of persons with whom the cases had been in contact, some anxiety was still felt. Nothing, however, was reported until the 20th August, when information was received that there had been cases of suspicious sickness at Waitburg, a Mission Station in the district of Stutterheim, situated about 30 miles away from the Izeli location. The sickness was supposed to have been brought from King William's Town. On communicating with the Government officials at Stutterheim, it was ascertained that the Government Medical Officer at the latter place had already been out to the station and had held an investigation, including an examination of one of the patients. He had reported that the disease was ordinary pneumonia, and that there were no suspicious circumstances in connection therewith. In view of what had already occurred, however, I deemed it desirable personally to visit Waitburg, and on arrival on the 22nd August found reason to disagree with the views expressed by the Government Medical Officer, for the disease had evidently been introduced from King William's Town district, and was apparently of the same nature as that found there. There was no one sick at the time, but one of the patients had just died, and a *post-mortem* examination was held, death being found to be due to pneumonic plague. It appeared that the first case that had arrived at Waitburg had come from a farm situated midway between Izeli and King William's Town. After

obtaining all possible information at Waitburg and instituting the usual precautions, I proceeded on to the farm in question and was able to obtain the following history connecting the cases which had occurred at these latter centres with those at Dubu's and Izeli locations, namely:—

Case 8—Gqidiya, also known as Loquani, Kaffir female, aged 62, cousin of Case 6, living on a farm close to the Izinyorka location, was visited by Case 6 on the 22nd July, while the latter was on her way through from Izeli to Dubu's location, and had accompanied her to the latter place. When Case 6 became ill she stayed in Dubu's location and helped to nurse her. The contacts at Dubu's subsequently admitted that this was the case, and stated that the reason they had concealed the fact at first, was because the woman had stolen a sheep, and they feared she might get them as well as herself into trouble over this matter if it was discovered. She left Dubu's feeling ill on the 1st August, five days after her cousin had died, but became too ill whilst on the road to proceed and was picked up by a passing wagon and taken to an unoccupied hut in the Izinyorka location. Here she developed severe pneumonic symptoms and was nursed by a neighbour named Faliwe. On the 5th August she was again placed on a wagon to be taken home to die, but she died the same day before her home was reached. The body was taken on, however, and buried on the farm.

Case 9—Faliwe, Kaffir female, aged 35, after the departure of Case 8 remained at Izinyorka, but commenced to feel ill herself on the 10th August, and being frightened, left for the Waitburg Mission Station, where her mother lived. She arrived at the latter place thoroughly ill the same evening. She was accompanied on her journey by a male friend named Getje, who slept in the same hut with her at Waitburg on the night of the 10th, and left for the Cathcart district the following morning. Faliwe became worse, and died on the evening of the 14th August. The body was buried in the Mission Cemetery.

Case 10—Sarah Tservu, Kaffir female, aged 65, nursed Case 9 at Waitburg between the 11th and 14th August, and became ill in turn on the 18th August. Her relatives reported the matter to the Resident Magistrate of Stutterheim on the 19th, who arranged for the Government Medical Officer stationed there to go out and examine the patient on the 20th. This the latter did, as already mentioned, and diagnosed ordinary pneumonia. The patient became worse and died on the evening of the 21st. On my arrival at the station on the 22nd the body was about to be buried. A *post-mortem* examination was held, death being found, as already mentioned, to have been due to pneumonic plague. Specimens from the *post-mortem* were retained and the diagnosis was subsequently confirmed bacteriologically in King William's Town and in Cape Town.

All contacts at Waitburg and Izinyorka except one were accounted for and placed under

surveillance, the usual disinfection measures being performed, with the result that no further cases occurred either at Izinyoika or Wartburg. The exception was Getje, one of the contacts of Case 9, who, as stated above, had left Wartburg for Cathcart on the 11th, and who, it was rumoured, had been taken ill at a place known as Thomas River in the Cathcart district, 15 miles away from Wartburg in the direction of the village of Cathcart. As it was imperative that I should personally carry out the investigation at Izinyoika and keep in touch with Dubu's location and Izeli, I returned on the evening of the 22nd to King William's Town but telegraphed full particulars to Cathcart, requesting that the Government Medical Officer stationed there should examine Getje and report if he was really ill, and if so, to at once notify me. To this I had no reply until the 26th when the Magistrate at Cathcart telegraphed requesting me to come at once, as there were some suspicious cases of illness in the village location. I left as soon as possible for Cathcart, arriving on the 29th, and then found that the suspected cases were undoubted cases of plague. The following information in regard to these cases was obtained —

Case 11 — Getje, Kafi male, aged 20, contact of Case 9, had left Wartburg on the morning of the 11th August. He reached Thomas River that evening, but was there taken ill with the same symptoms as the other. He became worse and remained at Thomas River, but on the morning of the 14th was placed in a wagon to be taken to a doctor at Cathcart. He died, however, during the day, before the wagon arrived, and the body was taken to his mother's hut in the location, the death being reported to the Resident Magistrate.

The Magistrate, having learnt that the deceased had come from the King William's Town district, requested the Government Medical Officer stationed at Cathcart to hold a *post-mortem* and to let him know at once if there was any suspicion of the death having been due to plague. That Officer held a *post-mortem* on the morning of the 18th August on the mud floor of the hut to which the corpse had been brought, and failing to find any glandular enlargements, came to the conclusion that the death was due to ordinary pneumonia, and reported to the Magistrate accordingly. Unfortunately he did not disinfect the hut or take any precautions in regard to the corpse, the latter being coffined by relatives and buried the same day in the village cemetery. On receipt of the telegram from me on the 22nd August, the Magistrate queried the Medical Officer regarding the death, the latter, however, stated that he was quite satisfied that the cause of death was what he had reported, and that he did not consider it necessary for the corpse to be exhumed for the purposes of a bacteriological examination. In view of this decided opinion, the Resident Magistrate did not bother to communicate the facts to me, nor did he have the relatives or others living

by the hut kept under surveillance. On the 26th it was reported to the Magistrate that some of the contacts had themselves become ill, and he then, as above stated, at once communicated with me.

Case 12 — James, Hottentot male, aged 60, residing in the hut next door to the one to which the body of Case 11 had been brought, had frequently visited the infected hut after the body had been removed for burial. He first felt ill on the 21st August, becoming acutely ill by the 23rd with intense headache, vomiting, coughing associated with the expectoration of bloody sputum, and delirious. When seen by me on the 29th he looked like a case of plague. He then had a temperature of 104°, respiration 40, pulse 110, tremulous lips, some stupor, rales and tubular breathing at bases of both lungs, was expectorating sputum tinged with blood, which was not, however, quite the so-called raspberry sputum. A small tent hospital was opened on the 30th August, and the patient removed. On admission, smears made from his sputum were, on microscopical examination, somewhat suspicious of plague, but two rabbits inoculated from the sputum both survived. The diagnosis of this case was not, therefore, confirmed bacteriologically, probably because the material was obtained too late in the course of the illness. In view, however, of the patient's close association with the other cases, which were bacteriologically proved, there can be but little doubt but that the clinical diagnosis was correct. The patient was discharged cured on the 16th September.

Case 13 — Lizzie, Kafi female, aged 40, mother of Case 11, had occupied the hut to which the body of her son had been brought in the Cathcart location. She became ill on the 24th August and on the 25th had high fever, was coughing up blood-tinged sputum and was delirious. On examination on the 29th the patient was found to be in a comatose condition and was evidently dying. She had a temperature of 105°, pulse too rapid to count, respiration 36 a minute, was unable to expectorate, tubular breathing and rales were to be heard over the whole of both lungs. She revived somewhat with stimulating treatment, and was removed on the 30th August to the tent hospital, she died on the 2nd September. A *post-mortem* examination was held and proved the disease to be pneumonic plague. This was confirmed by bacteriological examination, locally and in Cape Town, of the blood taken before death, and also of specimens collected at the *post mortem*.

Case 14 — Mnota, Kafi female, aged 30, sister-in-law to Case 13, resided in the hut adjoining that occupied by Case 13 and was constantly in the infected hut, especially after her sister-in-law sickened. She herself felt out of sorts on the 27th August, but became definitely ill on the 28th with acute headache, general malaise and pain in her left groin. On examination on the 29th the patient was found to be lying in her bed with her

left thigh semi flexed, she appeared stupid, lips were tremulous, temperature 103.5°, pulse 120, respiration 24 and a large brawny bubo apparently involving the left femoral glands and also one of those in the left inguinal oblique set. On her body and legs were numerous bites from body vermin. This patient, who was suffering from a typical attack of Bubonic Plague, was also removed to the temporary hospital, material, obtained from the bubo by using a hypodermic needle, was bacteriologically examined and the diagnosis confirmed. Under treatment the patient improved and was discharged cured on the 8th October.

Case 15—Maggie, Kafir female, aged 5, sister of Case 11, daughter of Case 13, sickened on the 26th August. On examination on the 29th the patient was found to be semi-comatose, temperature 104.5°, pulse 120, respiration 36, lips very tremulous and condition generally typically plague-like, large brawny bubo involving glands in left inguinal oblique set acutely tender, tubular breathing and rales over base of right lung. Patient was removed on the 30th to the tent hospital and the diagnosis was confirmed by bacteriological examination of material obtained by puncturing the bubo. The patient quickly improved and was discharged from hospital cured on the 8th October.

The source of infection of Case 1 is sufficiently clear. He became infected by visiting a store in which a virulent epizootic was in progress, and contracted the disease probably by the inhalation of the infected dust. The body of this patient was not exhumed, and it is possible that some of his glands draining the skin surface may have been affected, though, in view of the clear history of his illness obtained, this does not seem probable. If it was so, doubtless the patient was directly inoculated by the specific bacillus through the agency of infected rat fleas.

In regard to the subsequent cases, however, none could in any way have contracted the disease from infected rodents through the agency of rat fleas, for, except in the proximity of towns, rodents in this portion of Cape Colony are never found in native locations. A very careful search was made at Izeli, Dubu's location, Izinyoka, Waitburg and in the Cathcart location, without any trace of live or dead rodents being discovered. On the other hand, in this series of cases it was those who were closely associated with preceding cases that in turn sickened, and the only possible conclusion that can be arrived at is that Cases (2) to (11) at any rate, which were all pneumonic cases, were directly infected from case to case.

In regard to Cases 12 to 15, the evidence of case to case infection is not nearly so clear, for though the hut to which Case 11 was brought was free of rodents, it was, when examined by me, found to be swarming with human fleas, and the blankets and clothes in the hut were infested with bugs. Moreover, the patients

all had numerous signs on their bodies of old and recent bites from these parasites. The corpse of Case 11 was brought to the hut on the 14th August, a *post-mortem* was held on the 15th when a considerable amount of blood and fluids from the body was spilt on the mud floor, which was not disinfected thereafter. The two subsequent pneumonic cases sickened on the 21st and 24th August, and the two bubonic cases on the 26th and 27th idem. It would appear probable that the floor of the hut drying, the infected material deposited on it had become converted into dust, and that the source of infection of the cases was due to the inhalation, or inoculation through a breach of skin surface, of some of this dust.

But, in regard to Cases (14) and (15), it is possible that parasites in the hut had become infected, either directly from the corpse of Case 11, or, as is more likely, from the fluids spilt at the *post-mortem*, and that these parasites in turn had inoculated the patients.

It may, however, be mentioned that no plague bacilli could be found microscopically in smears made from 6 fleas and 2 bugs collected in the hut, nor were any positive results obtained from inoculating rabbits with material obtained from these parasites.

The manner in which these 7 different centres became infected may be clearly seen from the attached diagram.

Doubtless the number of cases would have been much greater but for the fact that Kafirs in their uncivilised state are accustomed to isolate their sick to some extent, and, moreover, a Kafir location is not like an Indian village but extends over many miles with huts situated in clumps of 2 to 5 a considerable distance apart.

The table on next page shows at a glance particulars *inter alia*, regarding the dates of onset of the cases, and the number of days prior to onset which had elapsed in each case from the first and last association with previous cases, if any.

From this table it will be seen that cases 2 to 11 all sickened from 1 to 6 days after the date of the last association with previous cases, and that, in regard to the 13 pneumonic cases, only one recovered, death taking place in regard to the remainder from the 3rd to the 12th day of the disease, the average being about the 6th day.

One great lesson is to be learnt from this series of cases, namely, the ease with which pneumonic Plague may be mistaken by those unacquainted with the disease for ordinary pneumonia. In these 15 cases no less than 3 such mistakes were made by four different Medical men, all generally on the look-out for plague. Case 8 was diagnosed by two private practitioners firstly, as enteric fever and subsequently as pneumonia, and was actually admitted as such into a ward in a large general hospital. Case 10 was diagnosed as pneumonia by a Government Medical Officer, and Case 11 as pneumonia after *post-mortem* examination, also by a Government Medical Officer.

AN EXTRAORDINARY SERIES OF OUTBREAKS OF PLAGUE IN CAPE COLONY, DUE TO CASE TO CASE INFECTION

By E N THORNTON, M.R.C.S. (ENG.), L.R.C.P. (LOND.),

Additional Medical Officer, Cape Colony [Late Plague Medical Officer, Punjab, etc.]

IZELI LOCATION

At Putine's Kraal—

Case 4—Was visited by Case 3 on the 16th and 17th July. Developed Pneumonic Plague on 18 7 07 and died on 15 7 07

Case 5—Nursed Case 4. Sickened with Pneumonic Plague 27 7 07 and died 2 8 07

At Nonie's Kraal—

Case 1—Left King William's Town 23 6 07
Sickened with Pneumonic Plague 24 6 07
Died on 5 7 07

Case 2—Nursed Case 1. Sickened with Pneumonic Plague on 8 7 07
Died on 13 7 07

Case 3—Nursed Case 2. Sickened with Pneumonic Plague on 14 7 07
and died on 20 7 07

At Dubu's Location—

Case 6—Nursed Case 3. Sickened with Pneumonic Plague 22 7-07, and died on 26 7 07

At Izinyoka—

Case 8—Nursed Case 6. Sickened with Pneumonic Plague 1 8 07 and died 5 8 07

At the Grey Hospital, King William's Town—

Case 7—Assisted to Nurse Case 6. Sickened with Pneumonic Plague and died on 30 7 07
1 8 07

At the Wartburg Mission Station—

Case 9—Nursed Case 8. Sickened with Pneumonic Plague 10 8 07 and died on 14 8 07

At Cathcart—

Case 11—Was in close contact with Case 9 on 10 8 09
Sickened with Pneumonic Plague on 11 8 09
Died on the road to Cathcart on 14 8 09
Body brought into Cathcart on 14 8-09
post mortem held without any precautionary measures in hut 15-8 09

Case 13—Lived in hut in which post mortem on body of Case 11 was performed. Sickened with Pneumonic Plague 24 8 07
Died on 2 9 07

Case 12—Visitor to hut in which body of Case 11 was post mortemed. Sickened with Pneumonic Plague 21 8 07
Removed to hospital 30 8 07
Discharged cured 16 9 07

Case 14—Nursed Case 13. Sickened with Bubonic Plague 27th August. Removed to hospital on 30 8 07. Discharged cured 8 10 07

Case 15—Lived with Case 13. Sickened with Bubonic Plague 26-8 07. Removed to hospital 30 8 07. Discharged cured 8-10 07

No of Case	Onset of illness			Type of Disease	Date of Death or Discharge	Source of infection
	Date of	Number of days after date of first association with previous case, if any	Number of days after date of last association with previous case, if any			
Case 1	24 6 07			Pneumonic	Died 5 7 07	Visited 1st infected store King William's Town 23 6 07
2	8 7 07	14	3	"	13 7 07	Case 1
3	14 7 07	5	1	"	20 7 07	Case 2
4	18 7 07	2	1	"	25 7 07	Case 3
5	27 7 07	9	2	"	28 07	Case 4
6	22 7 07	13 (case 2) 8 (case 3)	2	"	26 7 07	Case 3
7	30 7 07	8	4	"	18 07	Case 6
8	1-8 07	9	6	"	5-8 07	Case 6
9	10 8 07	9	5	"	14 8 07	Case 8
10	18-8 07	8	4	"	21 8 07	Case 9
11	11 8 07	1	1	"	14 8 07	Case 9
12	21 8 07	Visited infected hut daily from 15 8 07		"	Discharged cured 16 9 07	From infected hut in which case 9 was post mortem
13	24 8 07	Lived in infected hut from 15 8 07		"	Died 2 9 07	
14	27 8 07	Nursed in infected hut from 24 8 07		Bubonic	Discharged cured 8 10 07	
15	26 8 07	Lined in infected hut from 15 8 07		Bubonic	Discharged cured 8 10 07	

Whenever the infection of plague is introduced into an area it is most desirable that every case of pneumonia should, if possible, be examined by a bacteriologist, preferably by one with experience of plague, and to this end all such cases should be promptly notified by medical practitioners. It is also desirable that a *post-mortem* and bacteriological examination should be held as a routine measure in every death from inflammation of the lungs occurring in such an area.

Diagram showing the manner in which 7 different centres became infected with plague, the original focus being a 1st plague-infected store in King William's Town visited by Case 1 on 23rd June, 1907

VENTRO-FIXATION OF THE UTERUS A PROTEST

By R. H. H. GOHEEN, B.A., M.D.,

Mission Hospital, Vengurla

Not many years ago it was considered even by experienced gynaecologists a legitimate proceeding in certain cases of malposition of the uterus to correct the position by suturing the fundus to the anterior abdominal wall. To this procedure the term "Ventric-Fixation" has been applied by some one. The cases in which this operation was done were, I, generally those of retroposition or retroversion, having symptoms of chronic endometritis, with dysmenorrhœa and often sterility cases, that is, resulting sometimes from improper development, from improper clothing, or more often from infections in the uterus or in its adnexa, in young non-parous women. II—More extreme cases of descension, prolapsus or even inversion uteri in

conditions of impairment of the uterine supports in multiparous women were considered even better adapted to such operations.

That, in the light of experience, the operation of fixation of the uterus to the abdominal wall should now be considered absolutely unjustifiable in all cases is not the *purport* of this article. The operation still has a useful place in gynaecological surgery. In the latter category of cases, *viz*, those of prolapse in old multipara, in which pregnancy is almost certainly not to be expected, ventro-fixation of the uterus may be permissible. But that in young women it is unjustifiable, and may be dangerous to correct malpositions of the uterus by a fixation to the abdominal wall, the following case is reported to show—

Case Report—A primipara, 24 years of age, Roman Catholic, resident of Bombay, but had been living with parents in Vengurla for three months before confinement.

History—P one of three children. Married 10 years ago. Troubled with irregular menses, dysmenorrhœa, sterility. Operated in one of the leading hospitals of Bombay in November 1908, at which time a laparotomy was performed, the nature of the operation not having been communicated to P or husband.

Present Complaint—Labour pains for four days, during the last night (November 30th, 1909) the pains being so exhausting and yet ineffective that Dr DeQuadrados was called. P was sent to the Municipal Dispensary where I was asked to see her.

Condition—P well nourished, no evidence of deformities. Transverse presentation of the foetus, head in right flank, back presenting but not engaged, cervix so high that the finger

could barely touch the anterior margin. Pains had been checked by a sedative draught before removal to the dispensary.

Procedure—(1) External version attempted but futile. (2) Under chloroform, followed by deep æther anaesthesia, attempt at external version,—not successful. (3) Dilatation of the cervix with attempts at internal and bipolar version,—not successful. It was noticed at this time that the Retraction Ring (Bandl's) was so marked and so resistant that it greatly interfered with the insertion of the hand into the uterus and explained in part the immovable condition of the foetus and the non-engagement of any foetal part. (4) Persevering attempts were made to overcome this contraction ring,—with a view to podalic version,—but the ring was extremely resistant and it practically became the anterior wall of the pelvic inlet and so narrowed that aperture that it would with great difficulty admit the hand. It became apparent, therefore, that success could not be expected from that quarter. The patient had been under the anaesthetic for two hours and the pulse indicated rapid emptying of the uterus. Forceps were useless. Embryotomy was almost impossible because of the high and posterior position of the cervix and because of the small orifice at the pelvic brim. Symphysiotomy did not promise much improvement of the situation. (5) Cæsarean Section, because of its saving in time and a possible living child, was consented to by the parents and performed. On incising through the old laparotomy scar in the median line, dense adhesions between the abdominal wall and the anterior wall of the uterus were encountered covering a space of about three inches square of the wall. Incising through these adhesions and extending the incision upward sufficiently the uterus was soon opened (it being necessary to cut through 1-4 of the diameter of the placenta), and the contents removed. Haemorrhage was very moderate. The uterus and abdominal wall were rapidly sutured. The patient is making a good recovery, but the child did not live.

Conclusions—1 Ventro-fixation of the uterus may correct malpositions of the non-pregnant uterus, but in pregnancy it produces malpositions of very serious consequence to both mother and child.

2 It is very difficult to correct or to "undo" a ventro-fixation.

3 In all women who may bear children, shortening of the round ligaments, strengthening the pelvic floor, or if necessary performing ventro-suspension [i.e., suturing the fundus uteri to the ventral parietal peritoneum (only) so that a band may form sufficiently elastic to permit the uterus to rise in pregnancy]—such proceedings should invariably be considered preferable to ventro-fixation of the uterus.

A Mirror of Hospital Practice.

DEATH FROM INTRASPINAL INJECTION OF NOVOCAINE AND STRYCHNINE

By W. GABBETT,

MAJOR, I.M.S.,

General Hospital, Madras.

NAME Arumham Chetty, age 41, very stout but otherwise apparently healthy, came into the theatre for removal of a large elephantiasis of the scrotum weighing 31 lbs.

An injection of 3 cc of distilled water containing one milligramme of strychnine hydrochloride and one decigramme of novocaine was given between the 11th and 12th dorsal vertebrae. Onset of anaesthesia was rapid and in 5 minutes had reached the level of the nipples. Ten minutes later, it was noted to be 3 inches above the level of the nipples.

The patient sat up for 1 minute after receiving the injection and then lay down with his head on a pillow. About half-an-hour after receiving the injection, he complained of difficulty in breathing and attributed it to the weight of the tumour which was being turned up over the abdomen in order to complete the incision below. After lowering the tumour he still seemed to have difficulty in breathing but, as he attempted to vomit slightly, I considered that it was due to nausea and faintness and would pass off. At this stage the skin flaps had been reflected, penis and testicles enucleated and everything was ready for the final severing of the pedicle. No undue amount of blood had been lost. Indeed the pulse showed no sign of shock.

I was now told that the patient was very bad and saw that he had stopped breathing. Artificial respiration was commenced at once and it was noticed that the arms were rigid from spasm, so much so, that at first they could only be moved with difficulty.

The most energetic attempts failed to resuscitate the patient. There was no doubt that death was due to respiratory failure, whether as a result of spasm from the action of the strychnine on the medulla or from partial paralysis due to the action of the novocaine is difficult to determine.

Judging from the stiffness of the arms, I should attribute it to the former cause. I had given lumbar injections of novocaine in some thirty or forty cases last year.

This year, I had commenced a series of injections of strychnine and novocaine between the 11th and 12th dorsal vertebrae or between the 12th dorsal and 1st lumbar vertebrae after the method of Mr Canny Ryall.

I had given some 7 or 8 injections very successfully and was greatly pleased with the results. I have always been an advocate of spinal anaesthesia and I still think that, when we know more about its methods of action

so as to guard against the occurrence of such fatalities as the one I have related, it will be the method of the future, but I confess that until that day arrives, I shall keep to the old methods of general anæsthesia with all their drawbacks and let others do the work of pioneers.

I hope that if any other surgeons have met with similar fatalities due to spinal anæsthesia, that they will publish them, in order that the risks of the method may be justly estimated. I should add that I was assisted in the operation by Captain Hailey, I.M.S., who has also used spinal anæsthesia in about 40 or 50 cases with excellent results up-to-date and that several other medical officers were present. We were all agreed that death was solely attributable to

of the art to prevent their kites being easily 'cut'. In this instance an innocent passer-by was the victim. H., a Hindu, aged 24, a 'mistri' by trade, was admitted into the Medical College hospital on the 16th September 1909, suffering from severe burns on the chest and arms resulting from indirect contact with the electric mains.

History of the accident—At about 2 P.M. on 16th September 1909, the patient when returning from his work, saw a kite lying on a hedge near a house. He picked it up and began to pull in the thread attached to it. After pulling in a few yards, he found that it was attached to a thin copper wire which led to the top of a two-storied building. After hauling in two or three yards of this wire, he suddenly received a



the spinal injection and that shock or hæmorrhage were in no way contributory. The novocaine was in ampoules put up by the Saccharin Corporation Company and the strychnine was in solution in a flask, in fact identically the same solutions that I had used with success in the previous half-a-dozen cases.

AN UNUSUAL CASE OF SEVERE ELECTRIC BURNS

By F. POWELL CONNOR, I.R.C.S.,

CAPT., I.M.S.,

Medical College Hospital

THIS case illustrates very well the danger of using thin copper wire for kite-flying, a practice which is not usual, but which is evidently adopted by some of the more knowing masters

severe shock and became unconscious. It is evident that the wire had come in contact with one of the house mains.

Condition of patient on admission—The accompanying photograph illustrates very well the severity of the wounds, except that it must be noted that it was taken some days later when the wounds were granulating. Those on the chest had the appearance of incised wounds, but the edges were charred, and there was no bleeding. The costal cartilages had been divided in two places, and in one spot the finger could be introduced as far as the parietal pleura. One wound descended as far as the umbilicus, curving towards the right flank. A piece of thin copper wire over a foot in length lay at the bottom of the main wound.

The left hand was very severely burnt, the index and middle fingers being almost burnt

off, and the other fingers also injured. The right forearm and hand were badly burnt.

The patient was suffering from severe shock on admission, the left index and middle fingers had to be amputated, and the other wounds were dressed with gauze soaked in picric acid solution. His condition remained serious for some days, and his convalescence was slow. He was discharged from hospital on 13th November 1909, with his wounds all but healed.

The patient was treated in Major Stevens' ward, and I am indebted to him for permission to publish these notes of the case.

A CASE OF ACUTE SCURVY.

By R. KNOWLES,

Lieut. I.M.S.,

Staff Surgeon, Aden Crater.

IN view of the great difficulty of treating acute scurvy in a station such as Aden, where fresh vegetables are almost unknown, the following particulars of a case may be of interest.

Mahamad Ali, age 20, S and T Corps follower, was admitted to hospital on the 22nd October 1909. He had previously been attending as an out-patient for some 8 or 9 months.

The patient was extremely debilitated. There were sub-periosteal effusions over both tibiae, the legs being swollen and tender. Both knee-joints were hot, swollen and painful on movement. Hæmorrhages under the periosteum of both sides of the mandible, causing the cheeks to appear swollen. There had been epistaxis and some bleeding from the gums, which were swollen and spongy. The breath was very foul. The tongue was slightly swollen and furred, showing depressions opposite to three lower carious molars.

The cardiac dulness was subnormal. The apical sounds were clear, but of weak timbre and short. The pulse was markedly irregular and by holding the patient's arm above his head it could at times be made to disappear.

The following treatment and dieting was instituted—

- (1) Four fresh limes daily.
- (2) A gargle of alum gr ii, glycerine ℥i and water ad ℥i.
- (3) Cold wet dressings over the shins.
- (4) Raw goat mutton juice in water—acidified with a few drops of dilute hydrochloric acid.

(5) \mathcal{R}
 Calcii Chloridi gr x
 Acidi Citrici ℥ss
 Ft Pulv.—One powder in a tumblerful of water twice daily.

- (6) Three pints daily of "citrated" milk (Sir Almroth Wright). In preparing this the milk is brought nearly to boiling and for each ounce of milk used there is then stirred in a solution—

\mathcal{R}
 Sodii Citratis ... gr iiii
 Aqua . ℥i

No improvement followed. On the morning of the 28th October I judged the patient to be

dying, and did not expect him to live beyond mid-day. The temperature was rising hourly, being at 103° at 9 A.M., the pulse was 110, patient was semi-delirious and restless. The mouth could only be opened halfway, owing to the swelling from hæmorrhage.

I therefore decided on more active treatment. Now whatever the true pathology of scurvy may be, it is at least known that the condition of the blood is one of acidosis and that there is a deficiency of calcium content.

Having carefully sterilized everything to be used, at 10-30, I gave a "transfusion" into the right median basilic vein. Three and a half pints of solution were given, taking nearly an hour in administration. The solution used was—

(7) \mathcal{R}
 Sodii Chloridi ℥i
 Calcii Chloridi gr iiii
 Sodii Bicarbonatis ℥ss
 Aqua ℥i

Ft Solutio. In using add ℥i of solution to a pint of water at 105° Fahrenheit.

During administration the patient's condition rapidly improved, he became fully conscious and less restless. The pulse became more forcible. The temperature, however, continued to rise. At midday it was 105.4°. About one hour after the termination of the administration there was a profuse diarrhoea, the large stool containing much slime and being tinged with blood. The patient was sponged when the temperature passed 104°.

From this moment, however, rapid recovery ensued. The same evening the temperature was 102°, next morning 101° and next evening 100.3°.

The diarrhoea drew my attention to the condition of congestion and hæmorrhage into the gut. I discontinued medication by the mouth (No 5). Instead of this each morning a large enema of soap and water was given, and after the bowel had been cleared two pints of solution (No 7) were given. Most of this was, as a rule, retained easily. This was continued daily from 29th October to 19th November 1909.

From 1st November 1909 to 7th November 1909 there was slight daily remittent fever and 10 grains of quinine and diaphoretics were given. Patient was allowed out of bed on the 9th November. On the 11th the quinine and diaphoretics were changed for a "tonic" mixture.

(8) \mathcal{R}
 Ferri et Ammon Cit
 ratiss gr v
 Sodii Citratis gr v
 Tinct Nux Vomica m vii
 Tinct Aurantia m xx
 Aquam rd ℥i ℥i t d s p c

Sick leave was recommended and granted, and the patient left hospital on 20th November.

During his whole illness the only fresh vegetables obtainable were the 4 limes daily and on four or five occasions a little fresh greenstuff from Sheikh Othman. What struck me most

about the case was the condition of the blood, when opening the vein to "transfuse" It was extremely fluid and very dark coloured, and did not clot at all

My thanks are due to Hospital Assistant Kapui Chand for unwearyed and continuous attention to the patient, undoubtedly the principal factor in bringing the case to a satisfactory conclusion

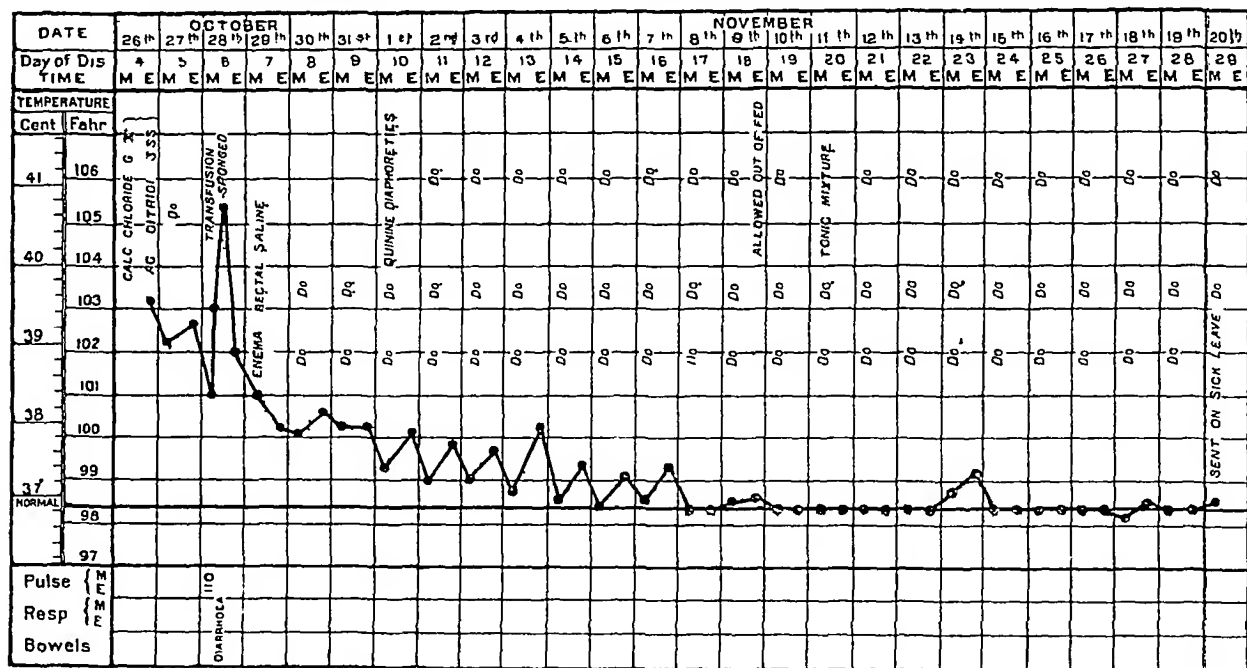
A CASE OF CONGENITAL ABSENCE OF UTERUS AND VAGINA

BY A F HAMILTON, M.B., F.R.C.S.,

CAPT, I.M.S.

OWING to the rarity of this condition, I venture to publish the following notes —

a little hard fibrous nodule, from the upper border of which could be very plainly traced, two ligamentous bands representing the fallopian tubes, and on each side posteriorly could be felt the two ovaries, very small and freely moveable. With a sound in the bladder and a finger in the rectum, the two could be approximated. Nothing could be done in the way of treatment, as any attempt to dissect out a vaginal passage would have been useless, even if practicable. The patient had never menstruated, nor could she ever be expected to do so, with a small nodule of tissue in place of a uterus. The patient's general configuration pointed to the fact that her ovaries, though very small, were probably functional. The anal orifice was patulous and somewhat fissured, and had doubt-



A B, Hindu female, æt 17 years, applied for treatment, complaining of the fact that she had never menstruated. She had been married four years and was sterile.

A priori, it appeared to be a case of imperforate hymen with retained menses or else a genuine case of *emansio mensium* due to some other factor.

The patient was a well-developed young woman, breasts natural, pubic hair present. There was no history of monthly pain or increasing discomfort.

An examination under chloroform revealed the following — Labia majora and minora well developed. A very thick fleshy septum of tissue representing the hymen stretched across the vulvar aperture extending up to the urethral orifice — and presenting no trace of a perforation or aperture. By pressure by the finger, the septum could be invaginated to the extent of about $\frac{3}{4}$ inch. There was no trace of a vaginal passage. Examination per rectum situated where the uterus should normally have been could be felt

less taken the place of the vagina for purpose of sexual intercourse.

PERIRENAL ABSCESS

BY F W SUMNER, B.A., M.B., B.C.,

CAPTAIN, I.M.S.,

Civil Surgeon, Bynori

SOWAR Æt 25, 17th Cavalry, Bannu, cold weather, 1907, healthy, well set up, typical sowar, not too large and not too small.

History — Was carrying a bale of grass on his head, stumbled over a chairpoy, striking his right side against it. Came to hospital two days after, complaining of stiffness of his right side and leg and inability to hold his body straight or walk straight.

Examination — Revealed nothing when lying on his back, but on standing up his right thigh was a little flexed and his trunk bent over a little to the right. Urine normal, no fever, normal pulse. There was no fracture of bones in the vicinity to be found; the symptoms

pointed to straining and bruising of muscles round the right hip joint, the head of the femur moved freely in its socket

Progress of disease—Condition remained the same for three days, the same amount of lameness continuing, not keeping him in bed, but only allowing him to walk with the aid of a stick, on the fourth day it was noticed that there had been a slight rise of temperature the previous evening, the man was placed on his back and again most careful palpation of his loins and abdomen was made, it was now for the first time noticed that the right loin was very slightly rigid as compared with the left. That evening the temperature rose again a couple of degrees

The diagnosis lay between—

(1) Damage to the kidney, this was negatived by the fact that there had not been any hæmaturia

(2) Pulping of the kidney with rupture of the ureter

(3) Perineal abscess tracking down psoas sheath

This latter was the most likely. I made an incision down to the kidney and evacuated, on reaching the perineal tissue, about 12 ounces of foul smelling, dirty yellow pus. The abscess cavity extended down the psoas sheath to the iliac fossa. This was treated 'secundum artem' and the man made a perfect recovery and has not since had any trouble from it.

Unfortunately the pus was not bacteriologically examined, but the fact that there was no breach of the skin while there was bruising of the muscles and possibly of the colon points to the cause of the suppuration being the coli wandering from the alimentary canal into the damaged tissue, and there setting up its typically stinking abscess.

Hindu, æt 30, Sadr dispensary, Bijnor, May 1909. Sallow ill-looking man, mostly lying in bed.

History—Had attended as O. P. for some time with gonorrhœa and, being a poor man, was admitted by the assistant surgeon to give him the necessary rest for a cure.

Examination—I saw him on four occasions on my daily round of the wards, but did not consider it necessary to examine him as he stated he was doing well, it so happened on the fifth day that on my round I found him just returning to his bed after obeying a call of nature, I noticed that he was walking lame, keeping his left thigh slightly flexed, the picture of the sowar mentioned in previous case immediately rose in my mind, and I thereupon examined him in the recumbent position and found a rigid loin on the left side and some tenderness on pressure, I enquired as to his temperature, but it had not been taken daily, I had him immediately taken to the operating theatre and cut down to his kidney and evacuated 20 ounces of foul smelling, dirty yellow pus, this

extended down to the iliac fossa, where I made a counter opening and left a large drainage tube through the cavity, the kidney was not felt during the operation, and I deemed it wiser not to disturb parts by searching for it. Unfortunately I had to go out into the district and on my return found that the man died two days after the operation, his temperature rising higher each night, which was not very wonderful, seeing that antiseptic solution had been squirted through the tube only, and the latter had not been removed and replaced by a freshly boiled one as should have been the case.

Increased septic absorption from the raw surfaces made at the operation, allowed to happen by reason of the inadequate drainage, had proved the last straw to a man already overburdened with toxins.

Here again the pus was unfortunately not bacteriologically examined, but there can be no doubt that, although the original infection was by secondary organism travelling up to the kidney from the urethra, the bacillus coli finally stepped in to give the suppurating process a greater virulency.

A CASE OF ENLARGED PROSTATE TREATED BY SUPRA-PUBIC PROSTATECTOMY

By V. M. PHATAK, I. M. S.,

Superintendent, Malwa Dispensaries

GHANSIRAM, aged about 60, was admitted into the Ujjain Charitable Hospital for difficulty in micturition. On investigation the case was found to be one of enlarged prostate and retention, which was relieved by No. 12 silver catheter. No. 14 steel sound was afterwards passed for four or five days, and the patient left the hospital, being relieved of the immediate trouble. The same patient was, however, re-admitted after about a month with complete retention. This time there was no relief even after a week's trial with high number sounds and prostatectomy was decided upon.

After the usual precaution about cleaning the operation area, the patient was anaesthetised with chloroform. The bladder was irrigated with boric lotion and subsequently filled with the same. A No. 12 silver catheter was passed with its stilette in, and was given in charge of an assistant with directions to keep the catheter end as close to the symphysis pubis as possible. An incision about 3 inches in length was made extending from the pubis up. The retro-pubic space and bladder were clearly defined and two strong silk threads were passed $\frac{1}{2}$ inch on each side of the middle line, fixing the bladder wall to the abdominal wall. The bladder was subsequently incised about $1\frac{1}{2}$ inch in length and the right index finger passed in to the bladder. It was found that a mass about the size of a large nutmeg was protruding into the bladder.

just where our guiding catheter was entering its cavity, and that the mass was more on the right than on the left side. A good-sized scissors, blunt-pointed and curved on the flat, was then introduced into the bladder from the left side, and the mucous membrane divided close to the base of the protruding mass, about an inch from the middle of urethral line. This done, the whole of the prostate was shelled out within two minutes with the right index finger in the bladder and the left in the rectum. On examining the prostate gland, it was found that the lateral lobes were practically normal, while the central lobe had enlarged and caused complete retention.

After the prostate was removed the guiding catheter was taken out, and No 8 rubber catheter put in, and the bladder irrigated by hot boric lotion. The two thick silk sutures which were introduced to fix the bladder were then removed, and the abdominal wall wound closed, except at its lower end where a gauze drainage was left. This drainage was removed after two days. The rubber catheter was kept in for about a week, when the patient began passing his urine in the normal manner.

The patient was advised complete rest in bed, which, however, was not adhered to by him, with the result that a small painful swelling at the incision area was observed within three days, and a small abscess was formed, which burst of itself a day after. The patient was then kept at perfect rest, and his bladder irrigated twice on each day. He left hospital quite happy and contented, a month after operation.

SARCOMA OF LOWER JAW

B. F. D. S. FAYLER,

CAPT., I.M.S.,

Agency Surgeon, Baghelkhand

SUNDI, a Hindu female, Talim by caste, was admitted to the Sutra Bazar Hospital, on August 23rd, 1908. The patient, aged 38, a married woman, had had five children, of whom one died of fever and diarrhoea at the age of three, the others were living and well. The family history was good, her parents, brothers and sisters were all healthy. She herself had been well and healthy up to a year ago from which time she dated the commencement of the trouble. She stated that about a year ago she felt some pain in a tooth in the left lower jaw. She applied some native remedies and fomented the part, and thereby got some temporary relief. A few days after this she noticed that the jaw was becoming slightly swollen over the site of the pain and, from this date up to the time of her first coming to hospital, the swelling slowly increased in size. She was first seen on January 1st, 1909, by my hospital assistant, who states that at this time there was some swelling and thickening of the lower jaw, but that it was

entirely confined to the interior of the mouth, the lips could be closed and there was no visible external tumour. She refused to remain in hospital at this time and the case was lost sight of until August 23rd, when she was admitted for treatment.

CONDITION ON ADMISSION.

There was a large tumour protruding from the mouth, irregularly ovoid and bilobate when viewed from the front and left sides (see figures I—IV), and circular in contour when viewed from the right (see figure V), purplish pink in colour and covered with a thin layer of yellowish slimy mucus, very firm and hard to the touch, and measuring $9\frac{1}{2}$ inches in its longest and $5\frac{1}{2}$ inches in its widest portions. On examination it was found that the tumour was free only in the upper portion where the upper jaw was tightly closed over it. The patient could with much difficulty chew on the right side of the mouth and could drink fluids, but the greatest difficulty was experienced in getting anything solid into the mouth and it was mainly on this account that she came for treatment. She could with difficulty stretch the mouth wide enough to enable me to get a view of a portion of the interior, showing what appeared to be the tongue firmly bound down to the growth. In the lower part the whole growth was intimately connected with the lower jaw and was partially covered by the enormously enlarged and cedematous lower lip, which was spread out beneath it (see figures III and V). She complained of no pain in connection with the growth. There was no enlargement of any glands. She was fairly well nourished and beyond the anxious expression brought about by the great stretching of the mouth she did not seem to be much concerned about herself, her main object in asking for relief, as stated before, being to enable her to take her food with more ease.

As the tumour was evidently growing very rapidly both externally, and internally towards the back of the pharynx, it was obvious that unless something was done she must shortly die of starvation or asphyxia. I accordingly decided on removing it at once.

The operation was performed under chloroform, a hypodermic injection of strychnine being given beforehand. At first, there was very free hæmorrhage but this disappeared as the deeper portions of the growth were reached. As soon as the external portion of the tumour had been removed, it was found that what had appeared to be the tongue was really part of the growth which was growing back towards the pharynx, the tongue was discovered lying to the right side and beneath the growth and quite free. The whole of the left ramus and body of the jaw were involved, necessitating removal. The left cheek was accordingly split, and the jaw was sawn through beneath the neck and the coronoid process on the left side and through the body

about the level of the right mental foramen. The whole of the mass was then easily cut away, the split in the cheek was repaired and the mucous membrane of the lower lip was united to the structures at the base of the tongue.

The patient made a good recovery from the shock of the operation and was doing well in every way up to the fourth day after the operation, on which date I had to leave Sutna for a few days. During my absence she unfortunately developed septic pneumonia from which she died.



FIG 5

The tumour on microscopic examination proved to be a round-celled sarcoma. The case was an interesting one not only from the point of view of the size and extraordinary situation of the tumour, but also from the fact that in spite of the rapidity in growth and the evident malignancy of the tumour the patient seemed so little inconvenienced by it and was comparatively speaking in such good health.

PSEUDO HYPERTROPHIC MUSCULAR PARALYSIS

By B. P. DARUVALA,

Hospital Assistant, Ahmedabad

A BOY, aged 12, was admitted to the Civil Hospital, Ahmedabad, on 27th September 1909 for enlargement of the muscles of the calves and inability to walk steadily.

Family history—The boy's mother is alive and healthy. His mother has one sister who also is alive and healthy, but has no children. He has one younger brother who is healthy also, had another brother who died a fortnight after his birth from want of proper nourishment. His father, who accompanied him, also looked healthy.

Previous history—The lad's father said that when the boy was five years old, he had an attack of fever with cough (probably pneumonia) which lasted about a week, leaving the child in a weak state of health. The child gradually recovered strength and was able to walk and play as before. Till the boy became seven years old nothing happened to mar the happiness of the family, when, the father's attention was attracted by a little enlargement of the muscles of the calves, which, he thought, was part of the growth of the child, but the child complained of impairment of power in the legs and said that he got more easily tired than before. The father said that the child, though so young, used to walk to a village five miles distant from his own, and come back the same day, without getting in the least tired, but since the enlargement of his muscles, the power of walking became considerably diminished and the muscles of the trunk and upper extremity began to waste. The legs began to swell more and more, and the difficulty in walking increased until the child attained the present condition.

Condition on admission—The muscles of the calf were very conspicuous and presented a marked contrast to the other wasted muscles of the body. They were hard and the calf measured $12\frac{1}{2}$ " in diameter at its thickest part. The muscles of the feet also seemed to be hypertrophied. The thighs were wasted. The gluteal and lumbar muscles appeared prominent, but those of the shoulder, arm and forearm were wasted. The muscles of the hand did not seem to be involved. The tongue was enlarged and he often protruded it between the teeth. The gait was peculiar. It was waddling and oscillating. The body was thrown from side to side with each step. The toes pointed towards each other and the heels were widely separated. The way in which the patient rose from the floor, when no object was near him to aid himself up by its means, was also characteristic. He went on his knees and hands, then he stretched out his legs. Next he managed to rest on his hands and toes. Then he moved and brought one of his hands on the corresponding knee, and with a push of the other hand on the floor, managed to stand upright. When he stood upright there was a certain amount of lordosis. He could not ascend the stairs. Knee-jerks were lost but the other reflexes were normal. Had control over the bladder and rectum. All the other systems except the muscular were normal. Treatment was useless as the patient went away from the hospital.

SARCOMA OF LOWER JAW

By CAPT F D S FAYRER, I.M.S.,

Agency Surgeon, Baghelkhand

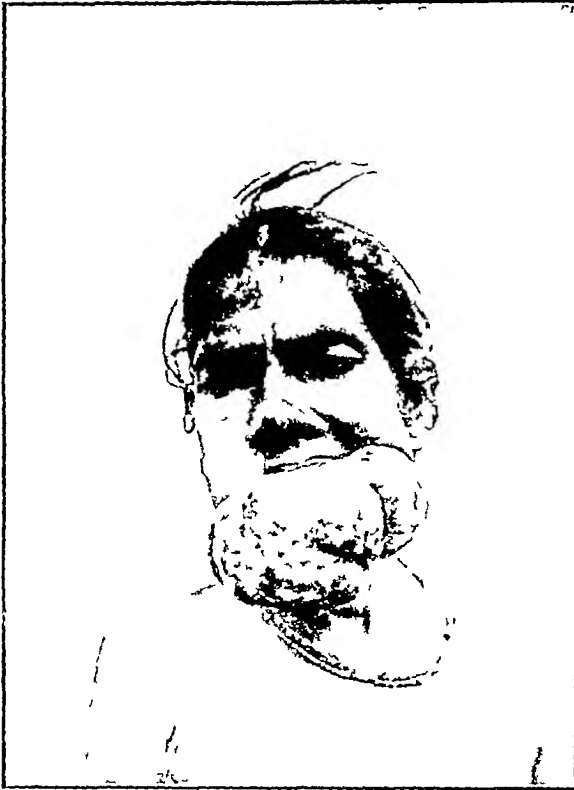


FIG 1

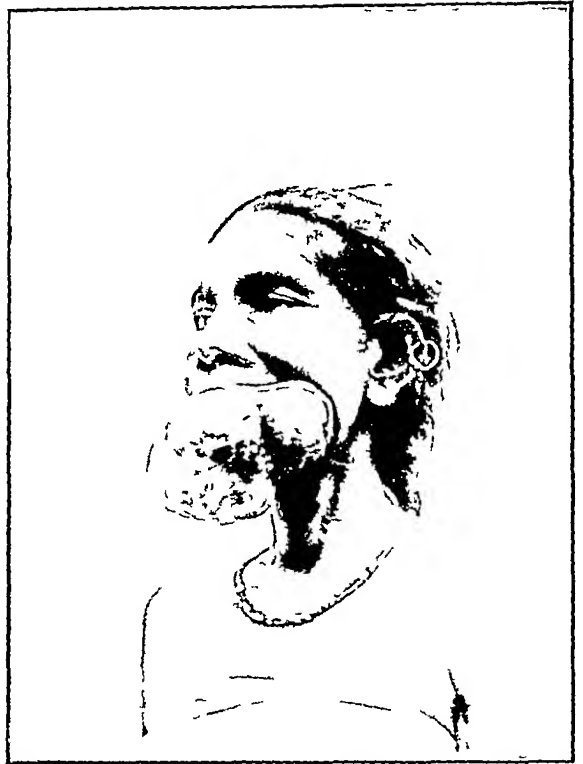


FIG 2

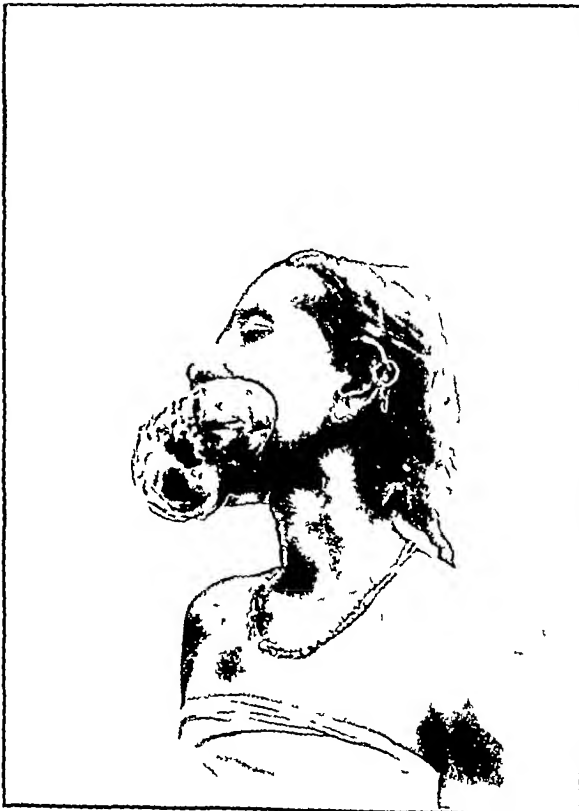


FIG 3

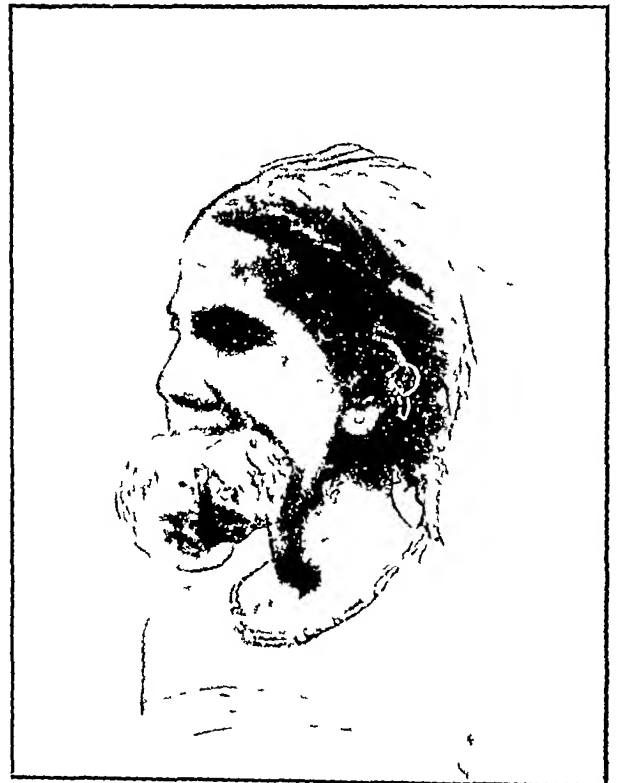


FIG 4

Indian Medical Gazette.

FEBRUARY

THE RETIRING DIRECTOR GENERAL

SURGEON-GENERAL SIR GERALD BOMFORD, K C I L, Director-General of the Indian Medical Service, retired on 1st January 1910. He was born on 19th July 1851, educated at King's College, London, and took the Diplomas of L S A in 1872, M R C S and L R C P, London, in 1873, and the Degrees of M B, London, in 1873, and M D in 1874. Entering the Bengal Medical Service as Surgeon on 30th September 1874, he became Surgeon-Major on 30th September 1886, Surgeon-Lieut-Colonel on 30th September 1894, was placed on the "Selected List" on 29th March 1900, and appointed Director-General, with the rank of Surgeon-General, in succession to Sir Benjamin Franklin, on 1st January 1905. He served in the Perak War of 1875-76, receiving the medal and clasp. He was the author of contributions on Distoma, on Cholera, and on Rhino-scleroma, in the "Scientific Memoirs" of 1886, 1887, and 1890. He was made a C I E on 1st January 1903, and K C I E on 1st January 1909, an Honorary Fellow of the Royal College of Surgeons, Edinburgh, in 1905, Honorary M D of Calcutta in 1908, and received a good service pension on 25th March 1907.

In the earlier years of his service, Sir Gerald served in the Perak War of 1875-76, in the Madras Famine of 1877, was for the (then) usual period of two years Civil Surgeon of Simla, and held the long since abolished appointment of Garrison Surgeon, Fort William, for several years. Vacating that appointment on promotion to Surgeon-Major, he was posted to the newly raised 2nd Battalion of the 2nd Gurkha Rifles at Dehra Dun, on its first formation. In the next few years he served as Civil Surgeon of Nagpur, on the Nizam's Cholera Commission at Haidarabad, and acted as Secretary to the Surgeon-General with the Government of India, being confirmed in that appointment on the death of Surgeon-Major Arthur Barclay on 2nd August 1891. Two years later, on the retirement of Brigade-Surgeon E A Birch, he became Principal of the Calcutta Medical College, and held that appointment for eleven years, during which much was done in the construction of new laboratories and the provision of modern equipment to improve the educational efficiency of the college.

During his tenure of that appointment the following improvements in the Medical College were carried out—New anatomical block, new chemical block, new mortuary, new pathological and physiological block, new military pupils' quarters. In connection with the hospital a new out-patient department was erected, and several other improvements carried out, the modernisation of the hospital begun in his time was brilliantly completed by his successor—the present Director-General—while much was also done to improve the tuition of the students, the supervision of their work, and the nursing arrangements of the hospital.

In 1903 Sir Gerald served on the Mulkowal Plague Commission, and in 1904 officiated for several months as Inspector-General of Civil Hospitals in the Punjab. His eldest son joined the Indian Civil Service, and was posted to the United Provinces in 1906, and a nephew entered the I M S at the last examination.

Like Sir Gerald himself, and like Sir Alfred Keogh, his contemporary as Director-General of the Royal Army Medical Corps, his successor, Surgeon-General Lukis, steps up into the Director-Generalship from the rank of Lieutenant-Colonel, passing over the grade of Colonel, and also, like Sir Gerald, he last held the appointment of Principal of the Calcutta Medical College.

We have traced in outline Surgeon-General Sir Gerald Bomford's career in India, but we feel it would be a pity to pass over the retirement of one so well known and one held in such high esteem without reference to his strong personality, and the straightforwardness and uprightness of character that gained for him the respect and confidence of the Government he served and the profession over which he ruled.

We are confident that we are only expressing the feelings of the Medical Services of India, and of all who came in contact in any way with Surgeon-General Sir Gerald Bomford, when we say that he is looked up to as an ornament to the service and profession to which he belongs. The unfailing energy and marked ability he displayed in the performance of the varied duties of his career early marked him out as a coming man. His extreme kindness and gentleness of character, hidden, as far as his sympathetic disposition would allow, by a feigned roughness of manner and pretence of brutality, only served to increase his popularity. As Principal of the Medical College, Calcutta,

Sir Gerald Bomford won the esteem and respect of his colleagues and, to a very marked degree, the love and loyalty of his students. He devoted his whole energy to the furtherance of the good of the college and of the students, he did much to place the college in the efficient condition of its present state and in the proud position it now occupies amongst medical teaching institutions, not only in India but even when compared with those to be found in Europe. His absolute truthfulness, frankness and squareness of conduct in all his dealings gained for him a high place in the affection of the Indian community, both within and outside the pale of the medical profession. Surgeon-General Sir Gerald Bomford had a very decided influence over those with whom he came in contact, and it gives us a great deal of pleasure to be in a position truthfully to say, that even his bitterest enemy could not point to a single instance of that influence ever being otherwise than one for good. He had the good of the profession deeply at heart and no man ever put self-interest less in the forefront of his desires. His worth as a man and his skill and energy as an administrator received full recognition from Government by his selection, while yet very junior, to the premier appointment open to the Indian Medical Service. During his term of office as Director-General he retained the confidence of Government and was rewarded with a K C I E, a year prior to the close of his Indian career.

INDICANURIA AND ITS SIGNIFICANCE

Indicanuria is the presence in the urine of a perceptible quantity, more than a mere trace, of the indoxyl sulphate of potassium. It is derived from anaerobic bacterial putrefaction of proteins. Indol is the first product which, on absorption, is converted into a soluble indoxyl, and this unites with a base, usually potassium, and is excreted as indoxyl sulphate of potassium in the urine. Normally 5 to 20 mgms of this substance are excreted abnormally from 50 to 150 mgms daily.

The best and simplest test for indican is as follows —*

To 10 c c of filtered urine add one drop of a 1 per cent solution of potassium chlorate, then add 5 c c of chloroform, and lastly, 10 c c

of pure hydrochloric acid of a sp gr of 1.19. Thoroughly mix by pouring slowly from one test-tube to another. The indican thus set free is dissolved in the chloroform, to which it imparts a blue colour. The maximum colouration is secured in ten minutes. Clinically, a quantitative idea of the amount of indican present may be obtained by noting the depth of the blue colour of the chloroform; a faint bluish discolouration of the chloroform may be taken as normal or as possessing no importance.

Indican is usually absent in normal children under five years of age. It may be constantly present in large, moderate or small quantities, or only occasionally present during certain hours of the day or certain days of the week or month. In order, therefore, that the presence of indican may not be overlooked, it is necessary to obtain urine at different periods and more particularly during the presence of one of the most marked symptoms of this affection, as for example, headache.

Indicanuria is significant of the absorption of the products of putrefaction, which putrefactive material is usually situated in the gastrointestinal tract, but under exceptional circumstances may be in other parts of the body. It is well known that during putrefaction phenol, cresol, fatty acids and gases, and other substances are elaborated in addition to indol, skatol or methyl indol. The test for indican is so simple and the tests for other putrefactive products so difficult that gradually indican has assumed the position of an indicator of the absorption, not only of indoxyl, but in addition any one or any combination of the bodies produced by the decomposition of proteins.

Heiter maintains that indol is only moderately toxic to man, and that small doses may produce frontal headache, mental irritation, insomnia and mental confusion, and that the constant absorption of enough indol to yield a constant strong reaction of indican in the urine is capable of inducing symptoms of neurasthenia. Skatol is supposed to act similarly to indol.

Phenol is extremely poisonous, but phenol-sulphate is non-toxic. Phenol is usually co-existent with indican and is decreased and increased in like manner, the principal exceptions being in anaemia and cachexia, in which indican is increased, and phenol decreased, and in hunger, in which phenol is increased and

* Judson Daland, M D, *Journ, Am Med Association*

indican decreased. Ciesol is supposed to act in a similar manner to phenol.

Further, during putrefaction, fatty acids such as formic, acetic and propionic, and certain gases such as carbonic, hydrogen, marsh gas and sulphuretted hydrogen are formed. No exact knowledge exists as to the precise manner in which the body protects itself from the poisonous compounds produced during protein decomposition, but it is believed that such an influence is exerted by the liver cells and the intestinal mucous membrane. Baumann was able to demonstrate that the liver contains a larger amount of etheral sulphates than does the blood. Clinically, indicanuria occurs more readily when the hepatic function is disturbed than when the organ is normal.

The conditions that favour indicanuria are numerous. Morbid conditions of the teeth, mouth, nose and sinuses connected therewith, possess an importance that is far too little recognised. Other factors are simple excess of proteins in the diet, insufficient mastication, any condition paralysing or lessening gastric, intestinal or colonic peristalsis, or retarding the onward progress of the gastro-intestinal contents or interfering with the normal secretions of the stomach, intestines, pancreas or liver. Indicanuria may, therefore, be expected in gastro-intestinal or colonic atony, as well as in relaxation of the abdominal wall, producing gastropnoxis or enteropnoxis. The absence, diminution or excess of hydrochloric acid, by producing indigestion and fermentation, favours the production of indol. Constipation may exist without indicanuria, but is exceptional. Acute attacks of indigestion with furred tongue, offensive breath, constipation, mental and physical depression and headache are usually associated with indicanuria, and, in many instances, are examples of acute toxæmia due to the absorption of putrefactive products from the intestinal tract.

The excretion in the blood of the derivatives of putrefaction, absorbed from the intestinal canal, produces varying degrees of anæmia, which, as a rule, is of the chlorotic type, and, in long standing and severe cases, this anæmia may become so extreme as closely to simulate the clinical and blood picture of pernicious anæmia. In all probability these poisonous substances in the blood cause the development of arteriosclerosis from direct action on the walls of the vessels.

The relationship of indicanuria to the nervous system is varied and interesting. Neuro-irititis and neuralgia have been noted. Occasionally pains in various parts of the body, due to intestinal toxæmia, have been erroneously ascribed to rheumatism and gout. One of the commonest symptoms is headache, either mild or severe, usually frontal, although it may be in the vertex or occiput. Persistent insomnia and neurasthenia are not unfrequently associated with putrefactive poisoning. Intestinal toxæmia is a common disease in itself, and a common complication of many diseases, such as eczema, pruritis, acne, rosacea and malodorous perspiration and breath. Its removal is very frequently followed by remarkable and prompt amelioration or disappearance of many distressing symptoms.

ACCELERATED PROMOTION

WE have received a letter on the subject of accelerated promotion to Major, pointing out that the men who entered the I M S on 27th January 1900 are only five months senior to the next batch, who entered on 28th June 1900, and that therefore all of the second batch, who receive accelerated promotion, will go over all those, probably the majority, of the first batch who are not thus favoured. As the writer has forgotten to authenticate his letter with his name, we do not publish it. But the subject is certainly one which is of considerable importance to the men affected. Presumably, when the grant of accelerated promotion was first considered, it did not occur to any of the powers that be, that the majority of men in two batches, those of January 1900 and of July 1902, would be superseded by their more favoured juniors. But we do not see any likelihood of their grievance being remedied. It is hardly probable that the Government would give accelerated promotion, one month in the first case and five months in the second, to the whole of the senior batch, to save them from supersession. Nor is it likely that the grant of accelerated promotion will be altogether withdrawn, which seems to be the only other way of escape. Even the grant of Netley time for pension and promotion would not help the men of January 1900, for that boon, if given at all, would be given to both batches alike.

WIDOWS' PENSIONS

It appears that we were mistaken in the view we put forward as to the interpretation of the Secretary of State's order altering the terms of subscription for widows' pensions, by Officers of the I M S

On enquiry we find the change has been made to meet the cases of I M S Officers specially promoted to Major's rank after $11\frac{1}{2}$ years' service and does not affect the right of Officers to subscribe in Class I after 25 years' service. Rule 9 of the Indian Military Service Family Pension Regulations is still in force and completely covers the point. Our editorial note on this subject in the November number should therefore be corrected.

Current Topics.

FAR EASTERN ASSOCIATION OF TROPICAL MEDICINE, FIRST BIENNIAL MEETING

THE Far Eastern Association of Tropical Medicine was established with the idea of bringing together workers in tropical medicine in this portion of the world for an exchange of ideas, and to foster the spirit of scientific investigation which has already brought forth such excellent results in certain of the eastern countries. The diseases which we have to combat and the problems which confront us are in a large measure the same, and it is believed that the meetings of the Association will enable all of us to take advantage of the advances made by each. On account of the practical importance which hygiene and sanitation have in the present stage of Far Eastern civilization, a whole day of the programme has been allotted to these subjects.

Owing to the great distances which separate us, it has been decided to hold the meetings every other year instead of annually. The first meeting of the Association will be held from March 5th to March 14th, 1910, at Manila, P. I.

Already a number of prominent medical men from other countries have signified their intention to be present, and others have promised to send papers, so that the success of the first meeting of the Association seems assured.

It is requested that the delegates and others bring with them, when convenient, rare pathological specimens, unidentified helminthological specimens, etc., for demonstration and discussion.

Manila can be reached very easily by steamship from any of the other countries in the Far East. Owing to the difficulty in furnishing sailing dates so far in advance, it is advisable for intending visitors to consult with their local steamship agents as to sailings and rates.

There are several hotels in Manila at which good accommodation may be obtained at 4 to 6 dollars a day, Philippine currency.

Visitors will be met on arrival by members of the reception committee.

The Government has appropriated a liberal sum for the entertainment of the guests during the meeting.

There will be evening entertainments and visits to points of interest in Manila. Trips will be made to the Naval Hospital at Canacao and to Fort McKinley, the large army post near Manila. The trip to Baguio will be one of the most delightful features of the week. Baguio is the summer capital and the summer resort of the Philippine Islands. It has an altitude of 5,000 feet, and with its excellent climate, lofty pine trees and beautiful scenery, it constitutes an ideal resort at the time of the year this meeting will be held. Those interested in ethnology and anthropology will have an opportunity of observing here the Igorot people, a tribe which has had, as yet, but little contact with the white man, and has preserved most of its old habits and customs.

THE ANTITOXIN TREATMENT OF TETANUS

IN the old days it was recognized that, although when once the classic symptoms of tetanus had appeared, the odds were much against the patient's recovery, yet if the symptoms appeared late there was a chance, and the later they appeared the greater, though meagre at best, this chance was. All that could be done was to remove the injured finger or other source of "irritation," and give anodynes and antispasmodics. In view of Roux and Yersin's brilliant work on antidipltheritic serum, when v. Behring in 1890 had shown that the making of antitetanic serum was possible, it was hoped that here we had a powerful aid in our attempt to control the disease. But experience showed that, although the prophylactic use of antitetanic serum had greatly lessened the incidence of tetanus among street-accident and "fourth of July" cases, yet when once the symptoms of the disease had made their appearance, the chances of helping the patient by injections of the antiserum were small indeed. The explanation of this fact that found acceptance was that the trismus, etc., showed that the higher nerve cells were already involved, and as the compound of toxin and cerebrium was not easily dissociable, the power of the antitoxin could not be exerted on the toxin, to neutralize it, or on the cells to protect them.

Of course surgeons still continued to treat their cases of tetanus with the antiserum, but only to register further failures to save life, especially in acute cases.

That ultra-Ciceronian, Baccelli, persisted in administering injections of carbolic acid to his

tetanus cases, and had more success than others who had followed the antitoxic method of treatment, but even carbolic acid seemed unable to do more than relieve an acute case.

Recently Zacharias recommended that the minimum dose of the antiserum, to be given within the first twenty-four hours of the appearance of symptoms of tetanus, should be that fixed by Knorr as the safe dose for animals—8 immune units per kilo of body weight. Simon reports two cases in which he carried out this recommendation with success, and we give here an epitome of the cases, as they will be recognized to have been exceedingly acute, and—as far as experience here and at Home goes—we judge that they could not possibly have recovered under any other treatment.

Case I—A 12-year old boy was run over by a waggon on the night of 28th May 1909, and had his right foot injured, the ankle-joint being opened. The foot and leg were cleansed and disinfected and the joint was drained. Nineteen hours after the accident he complained of difficulty in opening his mouth, and had spasms of the leg-muscles. At once 10 c.c. of Hoechst antitetanic serum was injected intravenously, and the same quantity intraspinally (100 I U in all). In the afternoon the spasms were more severe and opisthotonus set in, so the injured foot was amputated above the ankle. Next day trismus was very marked and there was great stiffness of the neck, so the injections of antiserum were repeated into the veins and theca spinalis. On the following day the symptoms were much about the same and he received similar injections of antiserum, with a little morphine when required, and, when the spasms appeared to call for it, inhalations of chloroform. Next day his condition was evidently not worse, so 100 I U were injected hypodermically. On the following day there was a distinct amelioration of the symptoms, and no antiserum was given, on the next day 100 I U were injected hypodermically, and by the next day, 10th June 1909, the boy had recovered from the tetanus. His weight was 23 kilos.

Case II—A boy aged 5, weighing 20 kilos, was run over by a coal cart and had his right leg crushed on 30th August 1909. Within two hours after the accident the leg was amputated through the knee-joint. As he had lost much blood he was given 500 c.c. of saline solution intravenously, and, as a prophylactic measure, 20 I U of Hoechst antitetanic serum were injected subcutaneously into the thigh. Eighteen hours after the accident spasms occurred in the stump, and after an hour in the left leg, and in the evening these were severe, trismus had set in, and the arm muscles were affected, although he had received 100 I U intraspinally and the same quantity intravenously as soon as the spasms had appeared. Small doses of morphine were given to relieve pain. On the following day the symptoms were more marked, and the belly

muscles were involved, but next day there was some improvement. On this day he received 100 I U intravenously, the subcutaneous injections of morphine being continued. On the fourth day there was less spasm, the limbs only being affected, but there was much pain in the belly and frequent vomiting. On the fifth day the symptoms were slight, the wound had healed *per primam*. On the sixth day the boy had completely recovered.

In the first case altogether 500 I U (100 c.c.) were given in six days, in the second case, in addition to the 20 I U administered as a prophylactic, 300 I U were given in three days, and of this quantity 200 I U were given immediately on the onset of symptoms.

Those who control hospitals in busy, and therefore rich, centres will, we feel sure, at once set about laying in a large stock of antitetanic serum, for use in acute cases. In the moribund we shall do what we can, being of opinion that a deficit in the funds is a much less evil than a failure to give a tetanus patient a chance of his life greater than he can have by any other means.

ADRENALIN AN ANTIDOTE TO STRYCHNINE

In the *Berliner klinischen Wochenschrift*, No 43 of 1909, appears a report by Faltz and Jicovic to the effect that they have found that adrenalin is a powerful antidote to strychnine. They are now engaged in experimenting as to its action with other poisons.

INTRAVENOUS NARCOSIS

LUDWIG BURKHARDT has carried out a number of experiments on animals—without a license from the old women of Vienna—and, as the result of these experiments, has introduced into surgical practice a new method of administering anaesthetics. He uses a saline solution containing 5–7 per cent of ether or 5 per mille of chloroform, and injects this into a vein, the process resembling that so clearly described by Rogers as of service in carrying out transfusion in cholera cases. In 33 cases in which the 5 per cent ether or 0.9 per cent, saline solution was used, there was only one case that vomited, and this vomited but once, 1350 c.c. having been used for an operation lasting one hour, after a preliminary dose of morphine and scopolamine had been given an hour before the operation.

The largest quantity required was 2500 c.c. (125 c.c. of ether) in an operation that lasted two hours, another operation of similar duration required only 1470 c.c. No circulatory disturbance was caused, but in two old patients there was slight bronchial irritation. No renal disturbance was observed, experiment had shown that when the ether-content of the injected solution was as high as 10 per cent.,

naecosis was rapid and deep and easily maintained, but there was a marked tendency to thrombosis and hæmoglobinuria, and often fatal result.

When chloroform solution is used alone or along with ether solution, hæmoglobinuria is a frequent result, but lasts only for a day or two. However as Schmidt has recently shown that hæmoglobinuria does not cause more than a functional disturbance of the renal cells, so long as it is fresh hæmoglobin of the same species, and not old or heterologous hæmoglobin that is being brought in contact with the cells, this result of the injection of chloroform cannot be viewed as a grave defect. In Burkhardt's opinion this method of causing naecosis is of service in the case of patients who have affections of the respiratory or circulatory apparatus, or are much pulled down by disease, not to speak of its advantages in cases of operation on the head and neck.

CALCIUM LACTATE

In the *Medical Record* for Sept 25th, W K Simpson reports the result of his experience with calcium lactate in hæmorrhages of the upper air tract. The use of calcium salts for the control of bleeding has been employed so long as to make them a factor deserving profound consideration. Their efficiency depends upon the increase of the calcium content of the blood, and consequent diminution of the period required for coagulation. He reports one case in which all the known means had been employed in a patient subject to severe attacks of epistaxis, but without any positive effect in their control until the use of lactate of calcium, when the result of its use was quite positive in its control and far exceeded the effect of any previous medication. While there has been quite a diversity of opinion as to the value of the calcium salts in hæmorrhagic conditions, his conclusions are (1) Clinical experience shows that calcium lactate has a controlling influence in hastening the coagulation of the blood. (2) Its efficacy is more marked in hæmophilic cases, in which the coagulation is delayed, than in cases with normal coagulation time. (3) Before operation, especially on tonsils and adenoids, careful inquiry should be made relative to any hæmophilic heredity or tendency. (4) In suspicious cases the coagulation period should be determined before operation. (5) It is questionable, if not positively contraindicated, whether such operations should be undertaken in hæmophilic cases except under the most extreme urgency. (6) In all operations for the removal of tonsils and adenoids, calcium lactate should be given for a period prior to and after the operation, both for its possible effect in diminishing the immediate hæmorrhage and in preventing secondary surface hæmorrhage. (7) Of the calcium salts, the lactate is most positive in its results,

is most agreeable to administer, and is least irritating to the stomach.—(*The Cleveland Med Jour*)

PHENOLPHTHALEIN

A L BENEDICT in the *Therapeutic Gazette* for September writes concerning phenolphthalein, that enough time has elapsed to enable the profession to make a fairly reliable estimation of its value as a therapeutic agent. The general consensus of opinion is that it is of little use in single doses to produce a clearing out of the bowels, but that it is efficient as a laxative, given somewhat like cascara in one to three daily doses for periods of a few days to weeks. It also seems to correspond to the conception of a cholagogue, and to tend to produce a free flow of bile and to check bacterial processes in the gall-bladder and biliary passages. The action of the drug is ascribed to a direct irritation and the production of increased peristalsis. So far as may be concluded from reports of accidental overdoses, no danger is to be apprehended from phenolphthalein in any quantity likely to be prescribed or dispensed at once. A single dose of 10 centigrams (grain $1\frac{1}{2}$) will occasionally produce free movement, or even some diarrhoea, after a state of constipation, but the drug cannot be depended on for an immediate single action. The ordinary dose repeated three daily for several days, or a week or more, seems to be from five down to three centigrams (from $\frac{1}{5}$ to $\frac{1}{2}$ grain) and, as in the case of cascara, the effect may be graded by varying the frequency of the dose from thrice to once daily, or even giving one dose on alternate days. In so far as he has used it for the liver, gall-bladder and its contents, its use has been empirical, and he disclaims any blind faith in a possible solvent or antiseptic action. Indol in the faeces and indican in the urine, have seemed to diminish under its use, but not to a greater degree of rapidity than could be ascribed to its laxative action alone. Henry M Becker in *Merck's Archives* also summarizes its advantages as follows (1) Smallness of dose. (2) Absence of griping and after-effects. (3) Insolubility of the salt. (4) Ability to give it to a nursing mother without its entering the breast-milk. (5) Certainty of action. (6) Freedom from danger even in exaggerated doses. (7) Ready administration in agreeable form. (8) Safety of its administration in pregnancy. (9) No cumulative action.—(*The Cleveland Med. Jour*)

PANCREATITIS

THE Symptoms and Diagnosis of Pancreatitis are considered by Dr C N Smith in an exhaustive review of the Surgical Aspects of Pancreatitis in the *Annals of Surgery*. At the present day he regards the physical, chemical, and microscopical examination of the patient and his excreta

as so complete that it renders the diagnosis of an existing pancreatitis a certainty. The digestive disturbances are too indefinite to be of diagnostic value, though loss of appetite with a particular distaste for meat and fat is very frequent. Vomiting is common in acute pancreatitis, but rare in the chronic form. The faecal evacuations are frequent, soft, bulky, and pale. Patients often complain of diarrhoea, but the term is usually misapplied, for the stools, though frequent, are large and formed. The importance of this symptom is much increased if jaundice is present, and even commoner in inflammation than in malignant disease of the pancreas. If the ingestion of fats is not diminished the stools may be distinctly greasy, the large size of the latter is chiefly due to the incomplete digestion of albuminous foods, and then frequency to the increased bulk. The normal pigmentation of the faeces is due to the interaction of the pancreatic juice and the bile, and therefore the absence of either will result in unpigmented faeces. The presence in the faeces of undigested muscle fibres is a valuable sign of pancreatic disease, but more so of malignant disease than of inflammation. Steatorrhoea is a more trustworthy sign than this, it can only be determined definitely by thorough chemical examination. Both these last signs may be present without pancreatic lesion if enteritis exists. — *The Hospital*

INDIAN MEDICAL SERVICE

AN examination for not less than thirteen Commissions in His Majesty's Indian Medical Service was held in London on Monday, 24th January 1910, and the five following days

LONDON SCHOOL OF TROPICAL MEDICINE

AMONG the students at the London School of Tropical Medicine are the following officers of the Indian Medical Service —

Major P. N. Lalor, Major J. H. Walton, Capt. R. F. Baird, Capt. A. B. Fry, Capt. T. H. Gloster, Capt. E. C. Hodgson, Capt. W. A. Justice and Capt. R. A. Lloyd

The school has been much enlarged during the long vacation, and there are now sixty students in attendance. It is hoped that there will be sufficient accommodation now for all who desire to take out the course

ALASKA-YUKON PACIFIC EXPOSITION, JUNE-OCTOBER 1909

A GRAND prize (Highest Award) has been conferred upon Messrs Burroughs, Wellcome & Co for their exhibit of 'Tabloid' and 'Soloid' brand products and 'Wellcome's' brand Chem-

icals, at the recent Alaska-Yukon-Pacific Exposition, held at Seattle

LITERARY NOTES

Saunders' Illustrated Catalogue of Medical and Surgical Publications. Revised to November 1909, and incorporating many new books and new editions, detailed particulars of each book are given, and nearly every page is illuminated by an illustration, representative of the pictorial features of the work from which it is taken. Of special interest is the coloured plate from Deaderick's *Malaria*, illustrating the malarial parasites. This catalogue will be found to be of great interest to the profession in India, and we would strongly recommend everyone to send for a copy. Fresh editions of well-known books and many new volumes have just been published. It is hardly necessary to add that nothing has been left undone, and no expense nor trouble spared by the publishers to secure success

MEDICAL LIBRARIES

THE New York Academy are to be congratulated on the exceedingly useful list of medical libraries they have collected in tabular form. The name of each individual library is followed by the post office address, the name of the librarian and the number of bound volumes in the collection. The list has been obtained by means of correspondence, and must have entailed a vast amount of work. However, the labour has given results of great value to the profession, in that it presents in a simple form, information regarding practically all the medical libraries of the world. The list will be found specially useful to research workers and the many who love books

BENGAL PAST AND PRESENT

THE January number of the Bengal Past and Present contains a most interesting article, with some original letters, on James Esdaile—the Mesmerist—a once famous member of the Indian Medical Service. Lieut.-Colonel D. G. Crawford, I.M.S., Civil Surgeon of Hughli, is the author of the article

THE JOURNAL OF TROPICAL MEDICINE AND HYGIENE

WE are sorry to see that Sir Patrick Manson has severed his connection with our London contemporary. His name appeared for many years on the advisory part of the Editorial Staff and has only quite recently disappeared from the list.

We understand that he strongly repudiates any responsibility for the opinions and leaders of the Journal of Tropical Medicine. Hence his resignation

Reviews

Small-pox and Vaccination in British India

—By Major S P JAMES, I MS, MD (Lond),
D PH Messrs Thacker, Spink & Co, Calcutta
1909

IN a well-written and exceedingly interesting essay of just one hundred pages Major James traces the history of small-pox and vaccination in British India from early times down to the present day. In European countries, where vaccination has been extensively carried out, an appeal to the figures of small-pox mortality has given in favour of the practice an answer as unequivocal as it is satisfactory. It is, therefore, of great interest to ascertain whether a similar answer will be returned from an enquiry on the effect of vaccination in a country like India, where the difficulties attending the introduction and progress of vaccination have been enormously greater than in Europe. It is with a view to answer this question that the Statistical Officer to the Government of India publishes the results of his important researches. In doing so the author has produced an exceedingly able and valuable contribution to the literature of small-pox vaccination, and his findings will do yeoman service in the support of the progress founded on Jenner's wonderful discovery. This essay is most opportune and will do much to assist in the more thorough appreciation of the importance of the subject to the Empire. Major James is to be congratulated on the able way he has dealt with the subject and on the statistical proof he has brought forward in support of his argument. The volume is profusely illustrated with diagrams and charts. It is beautifully got up, the publishers having done their share of the work in a manner worthy of high commendation. We consider that every medical man should read this essay, and we are confident by doing so that he will be in a better position to combat the views continually being put forward by opponents of the efficacy of vaccination in small-pox.

Constipation and Intestinal Obstruction —

By SAMUEL GOODWIN GANT, MD, LL D. Published by W B Saunders Company Pp 559 Illustrations, 250

THIS volume forms a very complete and interesting treatise on its subject. After passing in review the anatomy and physiology of the bowel, and particularly of the rectum, the ætiology of constipation is fully considered, and then, with equal fullness, its symptoms and diagnosis. Considerably more than half the book is devoted to treatment, described under the heads of educational, psychic, treatment by exercise and bodily movements, by hydrotherapy, internal and external, by massage and

by mechanical vibration, by electricity and by drugs, the author preferring to rely, as little as possible, on the last. Then follow chapters on the treatment of the complications of constipation, of plastic constipation, of the constipation of infants and children, and finally, a large amount of space is devoted to the surgical treatment of mechanical constipation. To only one of these subjects will any detailed reference be made, namely, to the treatment of splachnoptosis. The writer makes an unquestionably true statement when he says "with the possible exception of cancer, I know of no other affection which causes more misery and which is more difficult permanently to relieve than general enteroptosis or Glenard's disease." The methods of treatment advised are mechanical supports (in the practical details of applying which we think more help might have been given), rest with the foot of the bed well raised, the increase of nutrition, on which the writer lays some stress—being convinced that the deposit of fat in the mesentary shortens that structure, the regulation of the bowels and other excretory organs, strengthening of the abdominal muscles, and lastly, surgical treatment. There are a variety of operations advised to meet varying conditions. Colopexy, it is interesting to note, is performed through a ventral median incision, the suspensory stitches being introduced, if desired, at a considerable distance from the incision by means of a long-handled needle.

The book, excellent in itself, follows the best American type in being beautifully illustrated, and printed on heavy polished paper, and although this is somewhat of a disadvantage to the Civil Surgeon in this country, it may well be forgiven when the result is such as is the case in this book.

A Geography of India, Physical, Political and Commercial —

By GEORGE PATTERSON, late Professor of History and Politics, Madras Christian College. Price Re 1. Publishers, The Christian Literature Society for India, London 1909

WE have read this little book consisting of 320 pages with very great pleasure and a considerable amount of profit. The author has given a very wide interpretation to the term Geography and has treated many subjects which are of interest to the medical profession in India. The book is written for students of arts and we have no doubt it will be well received and meet with the approval of the lay authorities. It appeals to the medical profession by the absorbing interest inherent in a well-written book of this nature, dealing with the topography, commercial, political and statistical information regarding the land we live in. We congratulate the author on the success that has attended his efforts in producing a most readable and interesting little book.

Soured Milk and Pure Cultures of Lactic Acid Bacilli in the Treatment of Disease—
By G. HERSCHELL, M.D. Second Edition. Publisher, H. J. Glaisher. 1909

It is barely six months since we gave a very full article on the views and findings published by Herschell in the first edition of this little work.

The present edition is revised and enlarged, and the aim of the author is to supply a concise and trustworthy guide to the scientific use of lactic acid ferments in practice. The exhaustion of the first edition in a few months shows how very quickly this method of treatment has progressed, and in India we know that medication by means of the Bulgarian bacillus is being very largely resorted to. There is no doubt of the efficacy of the treatment when the proper methods of preparation are carried out, but, like all popular remedies, its popularity is likely to suffer from the results obtained from cheap imitations which have been placed on the market as a means of commercial speculation.

Every medical man should have a copy of this little book, wherein he will obtain a very complete summary of the literature of the treatment of disease by means of the Lactic Acid bacillus.

The Dietetic Treatment of Diabetes—By MAJOR BASU, I.M.S. Second Edition, Revised and Enlarged. Published by the Panini Office, Allahabad. 1909.

THE call for a second edition of Major Basu's little book on the treatment of Diabetes within a very short time of its first appearance shows how very important to the medical profession in India the subject of diabetes is. The present edition of Major Basu's compilation has been revised and enlarged, and is intended to provide the reader with a concise account of the present state of our knowledge on the treatment of diabetes. The subject-matter is lucidly put and well up to date, and we have no doubt the practitioner will find useful hints, many of great practical importance, in Major Basu's booklet.

We offer our congratulations to the author on the success of the first edition.

Aids to Microscopic Diagnosis (Bacterial and Parasitic Diseases)—By E. BLAKE KNOX, Capt., R.A.M.C. Publishers, Messrs. Bailière, Tindall and Cox. Price 2/6. 1909.

THIS book forms one of the many "aids" for those preparing for examinations. We must say, after a careful perusal of the subject-matter, the author might have justly made a bigger claim for his work. Within the one hundred and fifty pages of material will be found an exceedingly good epitomised account of all questions connected with the microscopic diagnosis of disease and with laboratory methods. No attempt is made to claim originality in the subjects

treated, the book is a compilation of notes taken in the laboratories of distinguished teachers. The result is that a very excellent little volume has been produced, which should prove exceedingly valuable to all laboratory workers and to those preparing for examinations.

We can very heartily recommend Captain Blake's book to the profession with the full confidence that they will obtain concise and up-to-date information on all questions connected with microscopic diagnosis.

Bayer's Pharmaceutical Products

THIS little work contains besides an account of the various preparations produced by Bayer Co. some tabulated information which will be found most useful for reference purposes.

All Bayer's preparations have undergone the most rigorous examination, chemically, pharmacologically and clinically before being introduced to the medical profession, so that they may be employed with the utmost confidence in the doses recommended.

Some of the new preparations just introduced are—Guaiacose, Sabiomin, Spiasol, Thyresol and Veronal-sodium. Full information is given under the heading of each drug as to its uses, etc., also a brief epitome of selected references to text-books and medical journals.

"A System of Medicine,"—By ALLBUTT and ROLLESTONE. Second Edition. Vol. VI. Diseases of the Heart and Blood Vessels.

THIS volume has the obvious advantage over the corresponding volume of the first edition of being a complete account of the diseases of the circulatory system and so being a self-contained text-book. The introductory article is written by Dr. James Mackenzie and deals with the physics of the heart and circulatory system, instead of with the physics of the heart alone, as was the case in the introduction to the earlier edition.

Much interesting new material is found in the article on over-stress of the heart by Allbutt and R. W. Michell, the latter of whom has added to our knowledge of the subject by a close clinical study of the condition as it occurs among Cambridge students in training for rowing, football and running.

The result of regular training is said to be I—A progressive reduction in the pulse frequency. II—A progressive decrease in the difference between the pulse rate before and after exercise. III—A gradual increase in the size of the left ventricle.

The earliest sign of overwork is a rise in the pulse rate in the morning before exercise, next comes a rise in the rate after exercise, and next an increase in the difference between the pulse rate before and after exercise. One of the most important signs of over-training is said to be a shortening of the interval between the second sound of the heart and the succeeding first

sound, so that it approximates nearly to the interval between the first and second sounds. Allbutt considers that, except in cases of definite disease, there is practically no risk of permanent ill-effects from severe exertion in the case of schoolboys, in the case of young men there is a risk but much smaller than is often supposed, but after the age of 30 laborious and continued exertion is regarded as predisposing to arteriosclerosis, tuberculosis and other diseases.

It is rather a surprise to learn that the most recent methods of examination show with some degree of certainty that, after severe effort and over-strain, the right ventricle is not dilated while the left is actually diminished in size.

A salutary warning is given against making an invalid of the child whose heart disease has reached a stationary condition. It is strange that the account of "Rheumatic Endocarditis" should find a place in this volume while "Infective Endocarditis" is dealt with in Vol II. The authors, Drieschfeld and McCrea, emphasize the fact that endocarditis is always due to some infection of a general nature, and consequently it is the more difficult to explain the broad distinction made by them between the so-called simple and infective endocarditis. Altogether the account of endocarditis is perhaps one of the least satisfactory chapters of the volume, it is to some extent a repetition of the description of endocarditis as a complication of rheumatic fever (*vide* Vol II), and the two articles have to be read together to get any complete account of the disease. There is an excellent article on congenital diseases of the heart, but one would have liked to see a fuller account of the prognostic significance of the various signs and symptoms.

The interesting series of cases of dilatation of the pulmonary artery with atheroma, recorded by Rogers of Calcutta, is referred to both in the article on diseases of the pulmonary valve and in the article on diseases of the arteries.

A much needed warning is directed against the practice of sending patients who are suffering from failing compensation on a long and tiring railway journey for bath treatment.

The value of graduated exercises in the treatment of lesions which have become stationary is insisted on. Allbutt deals with diseases of the aortic valve, he places rheumatism first among the causative factors and syphilis second. In India there can be little doubt that the order should be reversed. The same author writes on functional disorders of the heart, and at the outset he feels called on to defend the use of the term "functional," he does not deny that there is some change of structure underlying every disorder of the heart, but he finds the term convenient as a means of designating diseases not associated with any apparent or permanent structural defect.

Mott in the article on arterial degeneration states that, as a general rule, syphilitic arteritis is a distinct process from atheroma, but neither

in his article nor in Allbutt's on the aortic valve is there a clear line of demarcation laid down between the two diseases. Perhaps, in India where syphilitic arterial disease appears to be relatively much more common, it may be possible to assist in the problem of differentiation of the two conditions. No account of syphilitic arterial disease of the vessels of the spinal cord is given, apparently this is also a question regarding which there is still a good deal of difficulty.

Regarding the volume as a whole, it is obviously the most authoritative English textbook on the subject of diseases of the circulatory system and, as such, it is essential to every well-equipped medical library.

"Practical Microscopy" 2nd Edition—By F. SHILLINGTON SCALES, F.R.M.S. Pp 334. Price 5/- net. Publishers, Baillière, Tindall and Cox.

IN India every medical man either uses a microscope or suffers well-merited twinges of conscience because he does not do so, but very few, even of those who employ the instrument every day, know how to make the most of it.

The volume under review is the most practical of the smaller text-books on the microscope, it tells how to choose the instrument and how to adjust it to the greatest advantage.

The writer is a master of his subject, his advice as to the choice of a microscope is such that no one who reads the book need fear to be saddled with a white elephant, and the instructions regarding the mounting of objects and the use of the various accessories are clear and direct.

The book can be warmly recommended to those who have, and to those who ought to have, a microscope.

"Clinical Memoranda for General Practitioners"—By A. T. BRAND and J. R. KEITH. Pp 207. Publishers, Baillière, Tindall and Cox. Price 3/6 net.

THIS book is described by the authors as "a series of unconnected memoranda dealing with certain points, which have proved invaluable to them and which they hope may be found equally helpful to others, in the treatment of perplexing and atypical cases."

Many of the subjects dealt with would find a more appropriate place in the pages of a special text-book, for instance, the description of Gersuny's method of prosthesis by the subcutaneous injection of paraffine. On the whole, however, the book is of considerable interest, it might be described as a medical "Tit Bits," eminently suitable for whiling away an hour or two on a railway journey.

Medical Examination Questions, 1909 Published by JOHN CURRIE, Edinburgh.

THIS is a compilation of the questions set during the last several years in the different examinations held in Scotland. It should prove

useful to students and teachers in the preparation for medical examinations and is valuable as a means of comparison of the different standards of the several examining boards, so far as it is possible to estimate the standard from the questions asked

Pulmonary Tuberculosis and Sanatorium Treatment A Record of Ten years' Observation and Work in Open-air Sanatoria —
By C MUTHU, M D Messrs Baillière, Tindall and Cox 1910

THE author of this valuable little book speaks with authority on his subject, as he was physician to the Inglewood Sanatorium and is now to the Mendip Hills Sanatorium. The last twelve years have done much for public health, during this time we have witnessed the great movement that not only has revolutionised the treatment of consumption, but has shown a means for the attainment of a larger degree of healthiness and more wholesome living. Open-air sanatoria are really doing great work for the State, acting as so many centres of education, they teach the people the gospel of fresh air. This gospel was preached by the pioneer medical men in England in the teeth of ridicule and contempt, and yet, in ten short years they achieved the mighty task of completely changing public opinion in their favour.

This publication is divided into three parts: the first part deals with the scientific aspect of the disease, the second, with the principles of open-air sanatorium treatment and results, the third part takes up the social aspect of tuberculosis, remedial and preventive measures and the question of marriage. The text is beautifully illustrated with ten full page plates and many charts. We have read this book with great pleasure and profit and have no hesitation in recommending it to the profession in India as a short, concise and readable account of the main principles of the open-air treatment of consumption.

SPECIAL ARTICLE

THE PREPARATION OF THE HANDS AND SKIN *

By F A R NEWMAN,

MAJOR, I M S

[Abstract of a lecture delivered at the Campbell Hospital, Sealdah.]

THE question of the best method of preparing the surgeon's and his assistant's hands, and the patient's skin is of considerable practical interest. As we have seen in a previous lecture, the steril-

ity of everything else which comes in contact with a wound during operation, with the exception of the air, can be ensured. The skin for obvious reasons cannot be boiled, and we therefore have to trust to less thorough-going methods. There is no doubt whatever of the number and variety of the bacteria which infest the skin, linen worn next to it becomes more and more infected, the longer it is so worn without a change. The most constantly found micro-organism is the *Staphylococcus Epidermidis Albus*. It is still an unsettled question whether this is a distinct species, or whether it is the ordinary *S. Albus* of low virulence leading a saprophytic existence. Without going into the minute structure of the skin it is well to remember that the epidermis or superficial part consists of numerous layers of stratified cells superimposed on one another, and somewhat loosely connected. It is, in short, very porous in character, and its interstices afford an admirable hiding-place for bacteria. The skin of the hands differs from that of the trunk and limbs in being thinner, smoother, and on the whole less porous. It is however much more liable to become infected from contact with septic objects and material.

"Prevention is better than cure," and there is one measure of paramount importance in preventing the hands from becoming a probable source of wound infection, that is, the scrupulous avoidance of contact with pus and other sources of infection. One constantly sees dressings removed with the fingers, and septic surface palpated with the bare hand, the former should be done with forceps, and a layer of gauze can usually be interposed in the latter case. The occasions on which contact with infective matter cannot be avoided are very few and far between, and when this happens, the hands should be immediately rinsed in an antiseptic before it has time to become fixed.

To come to the actual details of preparation we are dependent on three measures:

- (1) Mechanical cleansing with soap and hot water
- (2) The use of alcohol
- (3) The use of antiseptics
 - (a) in aqueous or
 - (b) alcoholic solution
- (4) Any combination of these measures

Of mechanical ablution I need only say that it must be thorough. Any soap will do, the process of manufacture ensuring its sterility. A nailbrush and a piece of pumice-stone are essential articles of equipment, and five minutes by the clock should be given to it. A preliminary soak in hot water, to which sufficient liquor potassæ has been added to make it feel greasy, assists matters, particular attention should be paid to the palmar surface of the fingers, and the furrows round the nails. Some assert that practical sterility can be attained in this way,

* A more elegant preparation is ether soap the formula (St Thomas' Hospital) for which is given in Squire's Companion. The full quantity of ether is unnecessary, as it quickly evaporates and is wasted. Acetone may with advantage be substituted for ether in the formula.

others deny this, and appear to have right on their side

The use of alcohol was first introduced by Furbringer, a German surgeon in 1888. He noticed that, when the skin was wetted by aqueous solutions of antiseptics, it quickly ran off without really wetting it. He therefore used alcohol as a preliminary step, before finishing the process with 1-1000 perchloride, the antiseptic he preferred. One minute was the time he gave to each step.

Ahlfeld, another European surgeon, next said he got better results by omitting the aqueous antiseptic, and trusted to alcohol alone. He was fond of demonstrating the success of his method and for a time it had a great vogue.

Haegler and others did not confirm Ahlfeld's conclusions, and Kionig denounced it as "apparent sterilization only," showing that as the hands were wetted, they became more and more infective. Haegler prolonged the steps of Furbringer's original method to 5 minutes each, with greatly improved results. Still later, various surgeons working independently, obtained even better results by substituting a 70% alcoholic solution of perchloride or biniodide of mercury 1-1000, for Haegler's 1-1000 aqueous perchloride lotion. Stoneham, Pearson, Leedham Green and Saiwey all concur in this, and it seems as certain as anything can be, that this method holds the field.

We may at this point conveniently consider the rôle of alcohol. Used in the first instance on account of its more penetrating properties it has since been shown by various experimenters to be a fat solvent, an efficient detergent and actively hygroscopic, *ie*, it absorbs water, and thus dries out the epithelium. Rectified and methylated spirits, both containing roughly 90% of alcohol, are equally efficient, and the latter being cheaper is better suited for hospital use. Alcohol is often described as an active antiseptic. This statement, as we have seen in a previous lecture, needs modification. Leedham Green and others have found that while it possesses very definitely germicidal properties in 70% dilution, these fall off as it is more or less diluted. Thus 90% alcohol has practically no germicidal properties whatever. For practical purposes, 3 parts by measure of rectified spirit with 1 part of water, gives a dilution of very nearly 70% strength. Leedham Green found that plain 70% spirit had no germicidal effect on spores, but that the addition of sublimate killed them. He attributes the efficiency of alcohol to its hygroscopic powers and the way in which it prepares the epithelium for the absorption of antiseptics. Lockwood proved this by direct experiment on his own hands, the epidermis showing definite traces of mercury salts, so long as 26 hours after immersion in aqueous biniodide lotion, after previous treatment with spirit. The only surgeon who, as far as I am aware, systematically employs

spirit alone is Barker, he dips his hands at frequent intervals during operation in rectified spirits and polishes them with a sterile towel.

Of the use of aqueous antiseptic lotions alone after ablution, I have only to say that, while it is still perhaps the method most commonly used, many experiments have shown its unreliability. It would be going too far to say it is no good, but it is not nearly as good as other combinations.

To consider practical details shortly. Immersion is perhaps the ideal method. In practice rubbing the hands with sterile gauze dipped in the fluids, or brushing them with an aseptic nailbrush similarly wetted is satisfactory. Time however is an essential detail, for the best results. Two minutes of spirit and 3 minutes of spirituous antiseptic, or 5 minutes in all, is a good all-round allowance.

The solution I have been in the habit of using is 1-500 Mercuric Iodide, expressed in terms of the mercuric and not the double iodide. The dispensing formula is as follows—

Take of	
Perchloride of Mercury	10 grains
Iodide of Potash	$\frac{1}{4}$ drachm
Water	5 ounces
Rectified or Methylated Spirit	15 "

Though my hands are easily roughened by carbolic and perchloride lotions I have not experienced any inconvenience from this, and for some time I inadvertently used 1-250, without much roughening of the hands.

Though this is in all probability the most satisfactory method of preparing the hands, Saiwey and Leedham Green have independently come to the conclusion that there is no known method of absolutely sterilizing the hands. The latter's excellent monograph on the Sterilization of the Hands, was largely responsible for the greatly extended adoption of impermeable rubber gloves, in England at all events.

Of the advantages and disadvantages of rubber gloves I need only say, that so long as they remain intact and are intelligently used they afford a perfect safeguard against infection of a wound. They also protect the surgeon from infection in septic cases. They interfere somewhat with tactile sensation, but practice will overcome this. In choosing gloves those of a medium thickness and one size smaller than that taken in wearing ordinary gloves should be ordered. Spare rubber fingerstalls should be provided and boiled ready for emergencies, whenever the gloves are used. The plan of storing them in a dry state dusted with powder is only too apt to result in their becoming stuck together and torn when they are put on.

An experiment I had carried out, showed that immersion in pure glycerine was the best method of preserving them. The next best substitute is a solution of common salt, of roughly 4 to 5 per cent strength. This hardly affected their appearance, and did not spoil

then elasticity 70% spirit bleached them slightly, but, if it is desired to store them in an aseptic condition for any reason, it can be used with impunity for some days. Pulling them on is most easily effected in a bowl of sterile fluid, or the hands may be lubricated with glycerine and water, with a 4000th of perchloride added. The fingers of the first glove must not be pushed home with the other hand ungloved, a mistake very likely to be committed.

Cotton gloves are only useful for removing sterile articles from a sterilizer, and should be the last thing placed in it, for this purpose.

The preparation of the patient's skin round the site of operation is pretty much the same as that of the hands, but on account of its greasier condition, and greater coarseness in many parts of the body, there are certain differences in detail.

The process may be divided into four stages —

- (1) Mechanical ablation
- (2) Extraction of fat
- (3) Dehydration
- (4) Disinfection

The area prepared should not be limited to a few inches on either side of the incision. Thus for a laparotomy, the whole front of the abdomen and lower portion of the thorax in front should be cleansed. For an amputation through the thigh, the whole limb from hip to knee. The best plan is a hot bath and thorough ablation the evening before. This for many reasons may be impossible, and must be replaced by a more limited ablation.

Soft or liquid soap is easy to apply, and Lockwood's formula for spirit soap is simple and satisfactory.

Take of	
Soft Soap	2 ounces
Hot water	4 "
Dissolve and mix, and after cooling add rectified or methylated spirit	2 "

Though the process of soaping should be thorough, violence must be avoided, and after trying many things I have come to the conclusion that a good pad of sterile plain gauze, or better still a piece of Egyptian loofah, is preferable to anything. The latter should be boiled and kept in carbolic lotion. It is more economical than gauze in the long run, and a useful addition to the surgical outfit.

Many parts should always be shaved, and in men it is always a good routine. The Medical Supply Association have made a small scraper for removing all traces of soap at my suggestion, it is as you see a copy of an ordinary scraper used by syces.

Of fat solvents we have a choice of several turpentine, ether, spirit or acetone. For hospital use turpentine is cheap and efficient. Its antiseptic powers are however negligible.

Acetone is probably better than anything, as it combines the fat dissolving properties of ether with the dehydrating properties of spirit. Its cost is the same as methylic ether. All fat solvents must be applied with gauze, which takes up the dissolved grease into its meshes. If they are merely poured or rubbed over by hand, the fat remains spread out in a thin film.

The remaining steps of dehydration and disinfection are the same as for the hands. If acetone is used, spirit is unnecessary. Having thus cleansed the skin, it is a moot point whether a moist antiseptic dressing has any advantage over a plain dry gauze dressing. A dry dressing is quite sufficient to prevent subsequent contamination from external objects. Personally I prefer the dry dressing.

A moist carbolic dressing should never be used in the case of children on account of the ease of absorption and danger of carbolumia. Again, when there is any pustular irritation of the skin, a dry dressing and never a moist one should be applied. Of course, operation is undesirable under these circumstances, but cannot always be deferred on account of it. In this instance I use a dusting powder of double cyanide 1 part, diluted with 6 or 7 parts of boric acid.

In the case of patients with very dirty skins, a soap poultice, which is merely a thick layer of soft soap spread on lint, is an excellent measure some 3 or 4 hours before ablation.

Before operation the process should be repeated, and spirit or acetone soap is now most conveniently applied with a shaving brush. I show you here a sample of an aseptic shaving brush which, unlike the ordinary pattern, can be boiled with impunity, as the hair is not fixed with shellac. The soapsuds are then removed with a scraper, the skin treated with acetone, and finally finished with iodide spirit lotion.

Before concluding I should like to say one word on the aseptic arrangements at the time of an operation. They should be such that the operator is relieved of all anxiety of possible sources of error. It is perfectly pointless to place a sterile sheet under the patient, unless, as may be the case, he is to be turned over for a counter-opening. The place for the sheet is over the patient, and it should not only cover him completely, but should cover the operation table at all points also, and hang well down on every side. A hole cut in the sheet will expose sufficient area for operation, and is a preferable arrangement to numerous towels even when they are pinned or clipped together. If thought desirable, they can be used in addition, but are never so satisfactory as a sheet. A thin well-washed sheet is much more convenient than, and equally efficient as, a thick heavy one. Failing it, I often use a doubly-folded layer of sterile gauze.

ANNUAL REPORTS

REPORT ON THE WORKING OF THE GOVERNMENT MEDICAL SCHOOL, RANGOON, FOR THE YEAR 1908

THE year 1908 was not one of progress for the Medical School. Repeated attempts to select a new batch of students, to commence their studies during the year, proved unsuccessful and the number on the rolls remained the same as in the previous year.

No additions were made to the building and accommodation during the year as for only one class of 13 students, the present accommodation was ample. Serious difficulty will, however, be felt in a year or two when the work of the school is in full swing with four classes to teach. There is only one room in the school which can be utilised as a lecture room, and in many other respects the accommodation is very limited.

The want of a proper laboratory is greatly felt. At present all practical work has to take the form of demonstrations, and in those cases where the students are made to do practical work themselves they have to be divided into small batches of three or four for want of a properly fitted up room and sufficient apparatus. In the case of Anatomy, however, these difficulties did not exist, and a systematic course of dissection was carried on throughout the year. The dissection room has already a fairly complete set of anatomical specimens, and a set of pathological specimens is in course of preparation, but if we had our full complement of students the space would be much overcrowded.

The subjects taught during the year were Anatomy (advanced course), Materia Medica, and Surgery (Elementary course). The practical training consisted of dissection of the dead body, pharmacy, and clinical instruction in the Hospital. The practical pharmacy course was conducted in the Compounding Room of the Hospital.

On the whole, the progress of the school during the year cannot be said to have been very satisfactory. Failure to obtain a new batch of students to commence their studies during the year was discouraging, both to the teachers and the old students. A new class has, however, been started on the 1st January 1909 and already signs are not wanting to show that the enthusiasm among the boys has increased and that they are beginning to take a more lively interest in their work.

The new set has the same general education as the old, but in comparison with the latter at present they appear to be much inferior.

Although the stipends have been raised to four times their original amount with the object of making the course attractive to Burmese candidates with higher general education, the result has not yet justified the hope. This state of things will probably continue until the status of Hospital Assistants is improved.

Correspondence.

"LANOLINE OR GLYCERINE VACCINE"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—In your issue of September last there appeared a letter from Colonel W. G. KING, I.M.S., on the question of lanoline or glycerine as a medium for the preservation of vaccine, from which it appears the writer is of opinion that the destruction of extraneous organisms in vaccine is a work of supererogation provided "Vaccine Institutes are constructed and conducted in all details with a knowledge of modern asepticism." The desirability of applying this knowledge in the manufacture of vaccine is evident, but strict asepticism is not easily attained in the tropics. With a high wind raising clouds of septic dust and the proximity of insanitary conditions generating myriads of flies it is necessary to protect artificially the operations in a Vaccine Institute. Fly proof rooms can be built, but it may be some years before the Local Governments of India are persuaded that they can afford to erect dust proof, artificially ventilated and cooled buildings. Vaccine "pulp" must, therefore, be well covered while it is being ground down to form a homogeneous mixture with the diluent lanoline or glycerine. In the case of glycerine, machines for grinding under cover can be purchased, with lanoline, so far as I am aware, grinding must be done by hand and is a slow tedious operation. Lanoline of course adheres to the sides of the mortar, an intimate mixture between the lanoline and vaccine "pulp" is necessary, so if any cover is used during the actual grinding this cover must be frequently removed to permit of the adherent lanoline being scraped away.

Thus, the first advantage of glycerine is that it is possible to grind down the vaccine "pulp" with a due regard for the modern principles of asepticism.

Apart from dust and flies contamination may result from the liability of man to air. The second advantage of glycerine is that all contamination can be checked. Each glycerinated vaccine can be plated week after week until the plate exhibits only a few colonies, or perhaps none. Differential bacterial diagnosis is comparatively easy when the colonies are few. I have plated lanolinated vaccines up to nine weeks and have found no evidence of any reduction in the number of colonies. The vaccines were stored at 3°C room temperature and at 37°C. At the two latter temperatures the lanoline became rancid. These experiments are confirmatory of those made by Dr. Blaxall (Med. Off. Report to L.G.B., 1895-6, App. C), and by the "Indian Officer" to whom Colonel King refers. I know of no experiments with lanolinated vaccine to prove the fallacy of these observations, in fact, the Superintendent of the King Institute of Preventive Medicine in his report for 1908 regrets that lanoline has no "antiseptic action." Colonel King refers to some remarks by Dr. Copeman at a Buda Pesth Conference, I have not had the advantage of reading these remarks, and Colonel King omits to mention the date of the Conference.

All workers with vaccine agree that the extraneous organisms are generally of a non pathogenic nature. The German Commission of 1896 found staphylococci pathogenic for rodents in only 5 out of 18 vaccines. Refer also to Dr. Fiehl's paper on the injection of staphylococci into rabbits (Med. Off. Rep. to L.G.B., 1900-01). Colonel King compares the man who wishes to kill the extraneous organisms in vaccine to the Surgeon who uses the carbolic spray. The simile is hardly just. Tap water contains organisms generally harmless, yet the aseptic Surgeon, in preparing for a hypodermic injection, destroys these organisms by boiling the water. Asepticism is important in preparing vaccine, it is just as essential in the use of vaccine. Aseptic vaccination is impossible with a non sterile vaccine. Dr. Green has shown, by his experiments with chloroform, that a sterile and potent vaccine is not a myth (Med. Off. Report to L.G.B., 1902-3 & 1903-4). If Captain Christophers' experiments can be accepted as a true example of the contamination of glycerinated vaccine from the arm of the child, it is obvious that the vaccine must be issued in capillary tubes. On two occasions I have attempted to investigate the same point, but have not found such gross contamination. I attach details of one series, it must be noted that glycerinated vaccines were used and their bacterial content enumerated after actual vaccination. A possible fallacy lies in glycerine exerting its bactericidal action in the interval between the use of the vaccine and its examination in the laboratory. This interval was not greater than two hours in any case.

Vaccine No	Date of Vaccination	Date and hour of receipt of used vaccine at the laboratory	No of children vaccinated	No of Colonies
1457	16 9 09	16 9 09 11 15 A M	5	3
1457	16 9 09	16 9 09 11 15 A M	5	20
1480	17 9 09	17 9 09 10 30 A M	7	B Mesentericus only
1470	20 9 09	20 9 09 10 45 A M	8	Nil
1475	22 9 09	22 9 09 10 45 A M	7	115 mainly staph
1499	23 9 09	23 9 09 10 A M	7	B Mesentericus only
1502	24 9 09	24 9 09 11 15 A M	7	B Mesentericus only
1504	25 9 09	25 9 09 11 A M	8	200 mainly staph
1472	27 9 09	27 9 09 10 45 A M	8	Nil
1485	30 9 09	30 9 09 11 A M	6	B Mesentericus only
1504	4 10 09	4 10 09 10 45 A M	7	2
1489	5 10 09	5 10 09 11 A M	9	2
1514	9 10 09	9 10 09 10 30 A M	6	88 mainly staph
1523	10 10 09	10 10 09 11 5 A M	7	2
1519	11 10 09	11 10 09 10 A M	8	6
1527	14 10 09	14 10 09 10 45 A M	5	22
1520	16 10 09	16 10 09 10 45 A M	10	B Mesentericus only
1530	19 10 09	19 10 09 10 45 A M	6	4

Colonies counted with a magnifying glass after 48 hours at 37°C

Technique of vaccination. Arm of child washed with soap and warm water. Lymph spread over arm with scoop end of lancet before scarification. After each vaccination lancet wiped on cloth previously boiled.

In conclusion I would quote a sentence from the paper I read before the Bombay Medical Congress "If it can be proved that glycerinated calf vaccine can be used successfully by vaccinators distributed over a wide area of tropical country, no decision in favour of either lanoline or vaseline is possible unless it can be shown that one or the other possesses a bactericidal power at least equal to that of glycerine, or that the vesicles from the use of lanolinated or vaselinated vaccines are superior in quality to those after vaccination with glycerinated calf vaccine."

Climatic and other conditions differ in the several tropical and subtropical districts, so the question "lanoline or glycerine" may not always receive the same answer. But before dismissing contemptuously the modern desire for a sterile vaccine I hope Hygienists will remember the influence of the last straw on the camel's back. In India the efforts of the Hygienist are often confined to the attempted removal of this last straw, represented in vaccination under local conditions by the extraneous organisms in the vaccine.

I am, Sir,

Yours faithfully,

F H G HUTCHINSON,

MAJOR, I M S

BELGAUM,

5th December 1909

"COLI PYELITIS"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—It was with great interest that I read in the Supplement to the November number of the I M G, the various articles on Coli Pyelitis which, coming as one does from such an authority as Major Rogers, will, I trust, be noted by all and sundry, and particularly by any medical man whose conscience may be pricked by a perusal of this letter.

Last April 1909, while in Ootacamund, I was called into consultation on a case of fever occurring after child birth, and I diagnosed Coli Pyelitis.

The relatives of the case asked me to write and inform the husband who was in Bombay of my diagnosis and opinion, which I did. The lady recovered and returned to Bombay where she was told by two medical men (so I am informed) that what she had suffered in Ootacamund from was blood poisoning pure and simple, and from no such fancy disease as Coli Pyelitis, a diagnosis made evidently to shield some one's carelessness.

Who these medical men were I do not know. They at least will add to their store of knowledge by reading Capt McCay's and Major Rogers' articles.

To come to the case—

The lady, a primipara, was confined on the 19th April 1909. Forceps were necessary as a result of which a slight tear resulted necessitating the insertion of three stitches.

The stitches were removed on the 5th day and all went well until the 9th day, i.e., the 27th April when the lady for the first time had a rise of temperature. This continued to rise on the next few days. A blood examination revealed the absence of malarial parasites. On the 29th I was called in and after a careful examination could find no signs whatever of any pelvic trouble to account for her condition. The perineum was by this time quite healed and the lochia which had been normal throughout was ceasing. Constipation had been a trouble all along.

I eventually found out that the region over her right kidney was somewhat tender and that for the last few days she had complained of some deep pain there.

There was, however, no pain on micturition, and no undue frequency of micturition.

On examining the urine I noticed its opalescence and immediately thought of bacillus. A slight trace of albumin was present and the reaction acid.

The diagnosis of course was obvious even to my poor intellect on a microscopical examination of the urine which was shown to be teeming with bacilli coli, a catheter specimen revealing the seven condition. I suggested Urotropine and the Acid Phosphate of Sodium being given. This was started on the 30th April. On the 5th of May in addition Potassium Citrate was given and on the 7th of May after 10 days' fever the temperature fell to normal and remained so.

Although I only actually saw the case once, as it had roused my interest I received daily information of the progress and entered notes in my case book.

In view of the remarks by Major Rogers in his article the following points are worthy of note—

The period of nine days before anything abnormal was noticed. The fact that the onset was not sudden, the temperature taking some four days to reach its maximum. This gradual onset led the medical man in charge to get the patient's blood tested for the Widal reaction, which of course was negative.

The multiplicity of rigors in 24 hours. On one day the patient had three rigors.

The fact that the right kidney was affected.

The entire absence of any pain on, or frequency of micturition. My idea of the course of events in these cases of Coli Pyelitis is as follows—

A lady has a child, her abdominal walls become lax and there is consequently a much greater chance of any ureteral kinking occurring. Ureteral kinking or rather any interference with the normal flow of urine along the ureter as pointed out by Bond at Leicester in 1905, favours ascending currents in the ureters.

The vulva is bathed in lochial discharge and, as likely as not, in this lochial discharge, the colon bacillus may gain a footing wandering but a few inches from its natural home to lodge round the meatus urinarius.

A catheter may, as in the case under consideration, be passed, even with ordinary antiseptic precautions the colon bacillus may be thus inoculated into the bladder and continue its migrations up any ureter under the conditions allowing of ascending currents.

Yours faithfully,

J HAY BURGESS,

GUINDY, MADRAS,

19th December 1909

CAPT, I M S

"AN INTERESTING CASE OF 'COBRA BITE'"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—A robust and well built Sikh, named Shaib Singh, age 30 years, gate keeper by occupation in the E I Ry, was admitted into this hospital on 27th October 1909 at 10.30 P.M. having been bitten by a black speckled young cobra 3' 6" in length, which he killed by means of a *lathi* as soon as the bite was inflicted. Immediately after the bite he felt burning and shooting pain right up the limb. He put two strong cord ligatures above the seat of bite and was brought to hospital by his friends two hours after the incident, carrying the dead snake with them.

The man was very restless, could not walk or stand properly, complained of burning shooting pain in the limb and as far as the shoulder. Pupils—dilated, Pulse—feeble and 50 per minute, Respiration—laboured. The wound was a circular one about the size of a "half rupee" on the inner side of the calf and was skin deep.

As soon as the patient was brought to hospital an India rubber elastic tourniquet ("Reliance") was applied above the seat of bite in addition to the cord ligatures he already had. About twenty free deep incisions were made around the wound which was also excised and enlarged. It was allowed to bleed freely for about ten minutes and then washed with hot water and afterwards crystals of Potassium Permanganate of Potash were rubbed into the wound and into the incisions made. During the course of operation the patient vomited once and was very restless on account of the pain.

Half an hour after the operation the tourniquet was taken off and the cord ligatures were relaxed, as he could not bear the pain any longer. Within an hour after this the patient gradually sank into unconsciousness—the pulse was very feeble and the ready and came down to 30 per minute, so that the man's life was despaired of. However, a hypodermic injection of—Strychnine Nitrate—gr $\frac{1}{2}$, Digitalin $\frac{1}{10}$ gr with Dist. Water $\frac{1}{2}$ was given.

After the injection the pulse improved to a certain extent, but the drowsiness persisted and he vomited once more. The man was kept roused and made comfortably warm by means of hot bottles to the sides and warm blankets and the two following mixtures were given alternately every half an hour—

- | | | |
|-------|-----------------|---------------|
| (1) R | Pot Permanganus | gr 11 |
| | Aqua pura | $\frac{1}{2}$ |
| (2) R | Spt Ammon Aio | |
| | „ Aether Nitric | |
| | Liq Strychnine | m 14 |
| | Tl Digitalis | m 111 |
| | Aqua Camphor ad | $\frac{1}{2}$ |

After giving six doses of the mixture (each) the pulse rose up to 50 per minute and he became conscious the next morning. He then wanted some milk to drink but nothing was given till 12 noon, when $\frac{1}{2}$ seer of hot milk was given. Gradually the patient improved and by the next morning the pulse beat became 70 per minute, though still small and feeble, yet he was quite bright and cheerful as if nothing had happened to him. The leg was washed with Condy's fluid and was covered with antiseptic dressings. He was discharged "cured" the same evening.

The points of interest are—

(1) The cobra was quite a young one and was supposed to have the full strength of the venom and consequently the wound must have been poisoned whatever might be the dose,

yet the man survived though full two hours elapsed before any active treatment was taken in hand

(ii) The wound was not a typical "Punctured wound" but a circular one and skin deep

(iii) The strong cold ligatures which the man himself tied just after the bite were, in my opinion, a great help as they did not allow the poison to circulate in the system

(iv) Soon after taking off the ligatures the man turned so very ill that his life was despaired. This must be due to the circulation of the poison which was still left in the wound in spite of the copious bleeding and the cauterisation with Pot Permanganate

I am much indebted to Dr A C Brown, Dist Med Officer of the Company, for kindly allowing me to publish this case and going through it

UMBALLA,

F N ROSE,
E I RY HOSPITAL,
Umballa

8th December 1909

Service Notes.

DEATHS

ASSISTANT SURGEON ALEXANDER GROVES DUFF, formerly of the Bengal Medical Service, died at Palmerston, New Zealand, on 12th December 1909. He was born in Calcutta on 19th July 1834, educated at the Universities of Edinburgh and Paris, and took the degree of M D, Edinburgh, and the diploma of L P F S G in 1856, entering the Bengal Medical Service on 1st October 1856. He took part in the most prominent events of the mutiny, serving with the first Battalion, 60th Rifles, and with the 75th Foot, through the siege of Delhi. He was present at the émeute at Meerut on 10th May, 1857, at both battles on the Hindun river on 30th and 31st May, the affair at Bhagpat on 20th June, and throughout the siege of Delhi from 20th June up to the assault and capture of the city on 14th September. On 14th February 1858 he joined the army of occupation at the Alambagh, Lucknow, under General Outram, and was present at the storm and capture of Lucknow, under Lord Clyde. He subsequently served in the operations in Oudh under Lord Clyde, and was present at the occupation of the Forts of Amiat and Shankarpur, at the defeat of Bem Madho, at Buxar Ghat, on 24th November, at the bombardment and capture of Omria by Brigadier Eveleigh on 2nd December, and served with the 3rd Regiment of Hodson's Horse against the rebels on the Nipal Frontier during April and May 1859, receiving the mutiny medal with two clasps, Delhi and Lucknow. He resigned his commission on 30th September 1862, and had lived in New Zealand for many years past.

SURGEON MAJOR CHARLES ROBERT WIMOND BENSLEY, Bengal Medical Service, retired, died at North Kensington on 5th December 1909. He was born on 19th May 1834, took the degree of M D St Andrews, and the diploma of M R C S in 1856, and entered the I M S on 4th August 1856, as Assistant Surgeon, becoming Surgeon on 4th August 1868, and Surgeon Major on 1st July 1873. The latter part of his service was spent in civil employ in Bengal, where he was for long Civil Surgeon of Nadiya. He served in the mutiny in 1857-58, and received the medal.

LIEUTENANT COLONEL FREDERICK JAMES CRAWFORD, of the Madras Medical Service, died of pneumonia, at sea, on board the steamer *Herefordshire*, on the voyage home, near Suez, on 5th November 1909. He was born on 6th April 1861, educated at Queen's College, Cork, and took the degrees of B A in 1884, M D, M Ch, and M A O, in 1886, of the Royal University of Ireland, also the D P H, Cambridge, in 1896. He entered the I M S as Surgeon on 31st March 1887, became Major on 31st March 1899, and Lieutenant-Colonel on 31st March 1907. After a few years' military duty, he served for a short time as Civil Surgeon of Ganjam, but was before long transferred to the Madras Medical College, where he spent the rest of his service. For several years he was Professor of Anatomy in the Medical College, and second Surgeon of the General Hospital, until he was appointed Principal of the College, a little over a year ago. The Army List assigns him no war service.

RETIREMENTS

COLONEL HENRY KELLOCK MCKAY, of the Bengal Medical Service, retired on 3rd December 1909. He was born on 4th December 1850, educated at Guy's, took the diplomas of M R C S and L S A in 1873, and entered the I M S, as surgeon (one of the first batch who entered after the abolition of the rank of Assistant-Surgeon) on 30th September 1873. He became Surgeon Major on 30th September 1885, Surgeon Lieutenant-Colonel on 30th September 1893, was placed

on the "Selected List" on 15th July 1899, and reached the rank of Colonel on 3rd December 1904, with over thirty one years' service. Most of his service has been passed in military employment, but he served for about twelve years as Civil Surgeon of Jabalpur, being decorated with the C I E for famine work there, on 1st January 1899. Subsequently he received the O B on 20th June 1906. During the last five years he served as P M O, first in Calcutta, latterly in Burma. His war services include the North East Frontier of India, Naga Hills 1875, when he was mentioned in despatches, G G O No 574 of 1875, the Afghan War of 1878-80 (medal), and the North West Frontier of India, Mahsud Waziri Expedition of 1881.

LIEUTENANT COLONEL JOSEPH SYKES, of the Bengal Medical Service, retired on 14th December 1909. He was born on 19th August 1854, and, after serving in the Madras Sub Medical Department from 1874 to 1878, resigned, and went home, studying at Glasgow University, and taking the diplomas of L R C P, Edinburgh, and L F P S, Glasgow, in 1879. He entered the I M S as Surgeon on 31st October 1879, became Surgeon Major on 31st October 1891, Lieutenant-Colonel on 31st October 1899, and was placed on the "Selected List" from 25th March 1907. He served on the North West Frontier of India, in the Mahsud Waziri expedition of 1881, and in Egypt in 1882, being present at the actions of Kassassin and Telikebir, and receiving the Egyptian medal and clasp, with the Khedive's bronze star. The greater part of his service, however, was passed in civil employment in the United Provinces, where for several years past he had been Civil Surgeon of Bareilly.

LIEUTENANT ARNOLD THOMAS DENSHAM, I M S, resigned his commission on 30th October 1909. He was born on 7th February 1882, educated at Guy's Hospital and Cambridge, and held the diplomas of M R C S, L R C P London, and the degree of B C, Cantab. He entered the service on 27th July 1907, so had been in India only about a year and a half.

LIEUTENANT COLONEL RICHARD ROSE WEIR, of the Bengal Medical Service, retired on 21st February 1910. He was born on 21st February 1855, educated at Aberdeen University where he took the degrees of M B and O M in 1882, and entered the I M S as Surgeon on 30th September 1882, becoming Surgeon Major on 30th September 1894, and Lieutenant Colonel on 30th September 1902, and being placed on the "Selected List" from 14th June 1909. After some years spent in Military employ and as Civil Surgeon of Sibi, in Baluchistan, he entered the Jail Department in the United Provinces, and for the past four years had held the appointment of Inspector General of Prisons in Eastern Bengal and Assam. The Army List assigns him no war service.

LIEUTENANT COLONEL THOMAS DAVID COLLIS BARRY, of the Bombay Medical Service, retired on 18th November 1909. He was born on 9th June 1861, educated at Queen's College, Manchester, University College, London, and the Middlesex Hospital, took the diplomas of M R C S and L R Q C P in 1883, and entered the I M S as Surgeon on 31st March 1887, becoming Surgeon Major on 31st March 1889, and Lieutenant-Colonel on 31st March 1907. For several years past he had held the appointments of Chemical Examiner, Bombay and Professor of Chemistry in the Grant Medical College, and was the author of a standard work on Medical Jurisprudence "Legal Medicine in India and Toxicology," 2 vols, 8vo, Thacker & Co., Bombay, the first volume of which was published in 1902, the second in 1903, while it attained a second edition in 1904. He was also the author of several papers on the lower forms of animal life in 1883 and 1884. The Army List assigns him no war service.

THE following promotion is made, subject to His Majesty's approval —

To be Surgeon General

Lieutenant-Colonel Charles Pardey Lukis, M D, F R C S, vice Surgeon General Sir G Bomford, K C I E, vacated Dated 1st January 1910

The 1st January 1910

SURGEON GENERAL C P LUKIS, M D, F R C S, I M S (Bengal), is appointed to be Director General, Indian Medical Service, in succession to Surgeon General Sir Gerald Bomford, M D, K C I E, I M S (Bengal), with effect from the 1st January 1910.

BOMBAY LEGISLATIVE COUNCIL

THE following persons have been nominated by His Excellency the Governor of Bombay to be Additional Members of the Legislative Council —

Surgeon General H W Stevenson, I M S
Major J Jackson, M B, I M S

United Provinces Legislative Council

THE following persons have been nominated by His Honor the Lieutenant Governor to be Additional Members of the Legislative Council —

Colonel G F A Harris M D, F R C P, I M S
Lieutenant-Colonel Ch MacTaggart, M D, I M S

SURGEON GENERAL SIR GERALD BONFORD K C I E, M D, Indian Medical Service, Bengal, Director General, Indian Medical Service has been permitted by the Right Hon'ble the Secretary of State for India to retire from the service, subject to His Majesty's approval, with effect from the 1st January 1910

THE King has approved of the retirement of the following Officer —

Lieutenant Colonel Julian Carter Carington Smith, M B
Dated 7th August 1909

THE King has also approved of the resignation of the service, by Lieutenant Arnold Thomas Densham, Indian Medical Service with effect from 30th October 1909

MAJOR N P O'G LALOR M B, I M S, has been permitted by His Majesty's Secretary of State for India to return to duty within the period of his leave

THE following permanent appointments are ordered in the Civil Medical Department, Burma, with effect from the 24th November 1909 —

Captain H A Williams M B, D S O, I M S, to be Resident Medical Officer of the Rangoon General Hospital
Major E R Rost, I M S, to be Junior Civil Surgeon, Rangoon

Major W G Fildmore, M B, I M S, to be Ophthalmic Surgeon of the Rangoon General Hospital

Major F A L Hammond, I M S, Deputy Sanitary Commissioner, to be a Civil Surgeon, 2nd class

CAPTAIN C S LOWSON I M S, Superintendent, Central Prison, Ahmedabad, was granted by the Secretary of State for India study leave from the 19th October to the 18th December 1908

THE Governor in Council is pleased to appoint Lieutenant F C Fraser, M D, I M S to act as Superintendent, Central Prison, Hyderabad, *vice* Captain J Anderson, I M S, reverting

MAJOR A LEVENTON, I M S, made over charge of the Dibrugarh Jail to Lieutenant-Colonel E R W C Carroll, I M S, on the forenoon of the 20th November 1909

CAPTAIN J W D MEGAW, I M S, held substantively *pro tempore* the appointment of First Surgeon, Presidency General Hospital, Calcutta from the 28th July 1909 to the date on which he was confirmed in that appointment

THE services of Captain H Lack, I M S, are placed at the disposal of the Government of Burma

THE following notification by the Government of India, Home Department (Medical), No 1438, dated the 8th December 1909, is republished —

"The services of Captain T S B Williams, M B, I M S, are placed temporarily at the disposal of the Government of Bombay for employment on special duty"

WITH reference to Government Notification, General Department, No 4487, dated the 25th August 1909, Major S H Buinett M B, C M, I M S, acted as Professor of Pathology and Morbid Anatomy and Curator of Pathological Museum, Grant Medical College, Bombay, in addition to his own duties during the absence on leave of Lieutenant-Colonel C H L Meyer, M D, B S (London), I M S

ON return from the privilege leave granted him by Order No 2075, dated the 24th September 1909, Captain D N Anderson, M B, I M S, Officiating Civil Surgeon, is reposted to the Chanda District

UNDER Section 6 of the Prisons Act, 1894 the Chief Commissioner is pleased to appoint Captain D N Anderson, M B, I M S, Officiating Civil Surgeon, Chanda, to the executive and medical charge of the Chanda District Jail

CAPTAIN F S O THOMPSON, I M S, made over charge of the Alipore Central Jail to Mr M S Emerson, on the forenoon of the 30th November 1909

THE services of Captain W Tarr, M B, I M S, are placed at the disposal of the Chief Commissioner of the Central Provinces

CAPTAIN T C RUTHERFOORD M D, I M S, Officiating Civil Surgeon whose services have been placed permanently at the disposal of this Administration by the Government of India, Home Department, Notification No 1385, dated the 19th November 1909, is appointed to be a Civil Surgeon of the 2nd Class, with effect from the 25th March 1909, *vice* Lieutenant Colonel A Buchanan, I M S Civil Surgeon, 2nd Class, promoted to the 1st Class

THE services of Captain H S Matson, M B, I M S, are placed temporarily at the disposal of the Government of Burma for employment on plague duty

THE services of Captain S T Crump, I M S are placed temporarily at the disposal of the Government of Burma

CAPTAIN R E LLOYD, I M S, is appointed to be Professor of Biology in the Medical College, Calcutta substantively *pro tempore*, with effect from the 1st May 1909

THE services of Captain J L Lunham, M B, I M S, are placed temporarily at the disposal of the Government of Bombay

INDIAN Medical Service—Specialists—Captain A D White is appointed a specialist in (c) Advanced Operative Surgery, 8th (Lucknow) Division, with effect from 17th September 1909

LIEUTENANT COLONEL THOMAS DAVID COLLIS BARRY, Indian Medical Service, Bombay has been permitted by the Right Hon'ble the Secretary of State for India to retire from the service subject to His Majesty's approval, with effect from the 18th November 1909

LIEUTENANT COLONEL RICHARD ROSE WEIR, M B, Indian Medical Service Bengal, has been permitted by the Right Hon'ble the Secretary of State for India to retire from the service, subject to His Majesty's approval, with effect from the 21st February 1910

MAJOR P P KILKELLY M B, I M S, has been allowed by His Majesty's Secretary of State for India to return to duty

LIEUTENANT COLONEL W H BURKE, M B, I M S, was on general duty from the 5th November 1909 to date of resuming charge of the Civil Surgeoncy of Poona

HIS Excellency the Governor in Council is pleased to make the following appointments —

Lieutenant-Colonel W H BURKE, M B, I M S, Civil Surgeon of the first class, to be Civil Surgeon, Poona

Lieutenant Colonel J B Smith M B, M Ch (R U I), D P H, D T M & H (Camb), I M S, Civil Surgeon of the first class, to be Civil Surgeon, Belgaum

Captain R W Anthony M B, C M, I M S, Civil Surgeon of the second class to be Civil Surgeon Ratnagiri

Captain M S Iram I M S, Officiating Civil Surgeon of the second class, to be Civil Surgeon, Bijapur

MAJOR C J ROBERTSON-MILNE, I M S, is allowed, under Article 308 (b) of the Civil Service Regulations, furlough for three days, from the 4th to the 6th November 1909, in extension of the furlough already granted to him

CAPTAIN E O THURSTON I M S, Officiating Civil Surgeon, Gaya, is appointed to officiate as Civil Surgeon, Monghyr, during the absence, on leave, of Major C A Lane, I M S, or until further orders

SECOND Class Military Assistant Surgeon W J Gillson was on general duty at the Presidency General Hospital from the forenoon of the 19th November to the forenoon of the 6th December 1909

MAJOR R H MADDOX, I M S, Officiating Civil Surgeon of Darjeeling, is confirmed in that appointment, with effect from the 27th November 1909

MAJOR B R CHATTERTON, I M S, Officiating Civil Surgeon of Muzaffarpur, is confirmed in that appointment, with effect from the 2nd December 1909, *vice* Lieutenant Colonel T Grainger, I M S, whose services have been replaced permanently at the disposal of His Excellency the Commander in Chief in India,

LIEUTENANT COLONEL J T CALVERT, I M S, is appointed to be a Civil Surgeon of the First Class with effect from the 10th November 1909, *vice* Lieutenant Colonel E H Brown, I M S, retired but will continue to act as Professor of Materia Medica, Medical College, Calcutta, during the absence on deputation of Lieutenant Colonel G F A Harris, I M S, or until further orders.

MAJOR F O'KINEALLY, I M S, Civil Surgeon of the 24 Parganas, is appointed to act as a Civil Surgeon of the first class, during the absence, on deputation, of Lieutenant Colonel J T Calvert, I M S.

LIEUTENANT COLONEL C E SUNDER, I M S, has been granted, by His Majesty's Secretary of State for India, an extension of furlough for seven days.

MAJOR C A LANF, I M S, Civil Surgeon, Monghyr, is allowed combined leave for one year and ten months, *viz.*, privilege leave for two months and twenty five days under Article 260 of the Civil Service Regulations and furlough for the remaining period under Article 308 (b) of the Regulations, with effect from the 28th December 1909, or any subsequent date on which he may avail himself of it.

MAJOR P B, HAIG, Indian Medical Service (Bengal), an Agency Surgeon of the 2nd class, is posted as Agency Surgeon in Bhopal, with effect from the 9th November 1909.

LIEUTENANT COLONEL H E DRAKE BROOKMAN, I M S (Bengal), an Agency Surgeon of the second class, is posted, on return from leave as Agency Surgeon in Baghelkhand, with effect from the 29th November 1909.

CAPTAIN C M GOODBODY, I M S, an Officiating Agency Surgeon of the second class, is posted, on return from leave, as Agency Surgeon in Alwar, with effect from the 29th November 1909.

THE services of Captain C F Mari, I M S, Officiating Medical Storekeeper to Government, Madras are replaced at the disposal of His Excellency the Commander in Chief on the forenoon of the 18th December 1909 on relief by Major W G Richards, I M S, Medical Storekeeper to Government, Madras.

LIEUTENANT COLONEL E R W O CARROLL, I M S, on return from leave, is reappointed Civil Surgeon of the Lakhimpur District.

UNDER Clause 53 of the Regulations appended to the Regimental Debts Act, 1893, it is notified that report of the death of the undermentioned Commissioned Officer on the dates specified, was received in the Army Department between the 24th and 30th November 1909 —

Corps	Rank and Name	Date of Decese	Place of Decese
Indian Medical Service	Lt Col Fredrick James Crawford, M D	5th November 1909	At sea

MAJOR H A J GIDNEY, I M S, Civil Surgeon, Mymen singh, is allowed privilege leave for two months and twenty one days, under Article 260 of the Civil Service Regulations, combined with furlough for eight months and sixteen days under Article 308 (b) (IV) (2) of the Regulations, and study leave for eleven months under the Study Leave Rules, with effect from the date on which he may be relieved.

THE following promotion is made, subject to His Majesty's approval —

LIEUTENANT TO BE CAPTAIN

1st September 1909

HAROLD HAY THORBURN, M B

ON return from the privilege leave granted him by Order No 1551, dated the 19th July 1909, Major N R J Ramier, D P H, I M S, Civil Surgeon, Ohhindwara, to the executive and medical charge of the Ohhindwara District Jail.

UNDER Section 6 of the Prisons Act, 1894, the Chief Commissioner is pleased to appoint Major N R J Ramier, D P H, I M S, Civil Surgeon, Ohhindwara, to the executive and medical charge of the Ohhindwara District Jail.

CAPTAIN J G G SWAN, I M S, made over charge of the duties of Superintendent of the Shahpur District Jail to Lala Pohoo Ram, Magistrate, first class, on the afternoon of the 8th November 1909.

LALA POHU RAM, Magistrate, first class, made over charge of the duties of Superintendent of the Shahpur District Jail, to Major G McI Smith, I M S, on the forenoon of the 9th November 1909.

ASSISTANT SURGEON FEROZE DIN MAHROOF made over charge of the duties of Superintendent of the Ambala District Jail to Major A W T Buist, I M S, on the afternoon of the 26th October 1909.

CAPTAIN O ST JOHN MOSFES, I M S, Officiating Resident Physician, Medical College Hospital, Calcutta, is appointed to act as a Civil Surgeon of the second class, and is posted to Purnea, with effect from the forenoon of the 18th November 1909.

CAPTAIN, H R DUTTON, I M S, is appointed to officiate as Resident Physician, Medical College Hospital, Calcutta, during the absence, on leave, of Captain W V Coppinger, I M S, or until further orders, with effect from the forenoon of the 10th November 1909.

CAPTAIN F S C THOMPSON, I M S, is appointed temporarily to be Superintendent of the new Central Jail at Alipore, with effect from the 1st December 1909.

LIEUTENANT COLONEL JOSEPH SYKES, Indian Medical Service, Bengal, is permitted to retire from the service, subject to His Majesty's approval with effect from the 14th December 1909.

CAPTAIN L COOK, I M S, is appointed to act as a Civil Surgeon of the second class, and is posted to Midnapore, with effect from the forenoon of the 15th November 1909.

MAJOR P P KILKFLY, M B, I M S, has been allowed by His Majesty's Secretary of State for India an extension of leave on medical certificate for one month and five days.

LIEUTENANT COLONEL W S P RICKETTS, M B, I M S, has been allowed by His Majesty's Secretary of State for India an extension of furlough for two months and twenty four days.

LIEUTENANT COLONEL J P BARRY, M B, I M S, has been allowed an extension up to the 7th December 1909, of the special leave on urgent private affairs granted to him in Government Notification No 5250, dated the 8th October 1909.

HIS Excellency the Governor in Council is pleased to appoint Captain B Higham, M B, I M S, to act as Professor of Chemistry and Medical Jurisprudence, Grant Medical College, pending the return to duty of Lieutenant Colonel T D O BARRY, I M S, or further orders.

THE services of Captain T F OWENS, I M S, are replaced at the disposal of the Government of India in the Home Department.

ON his return from leave Major F N Windsor, I M S, is appointed to be Chemical Examiner and Bacteriologist to the Government of Burma, in place of Captain T F OWENS, I M S.

MAUNG AUNG TUN, M B, C H B (Edin), is appointed to be House Surgeon, New General Hospital, Rangoon, with effect from the 24th November 1909.

THE following postings and transfers are ordered in the Civil Medical Department, Burma —

Major J Entrican, I M S, on return from leave, to be Civil Surgeon and Superintendent of Jail, Toungoo, in place of Captain F V O Beit, I M S, proceeding on leave.

Captain E A Walker, I M S, to be Civil Surgeon, Meiktila, and Superintendent, Vaccine Depot, Meiktila, in place of Captain Good, I M S, transferred.

Captain J Good, I M S, to be Civil Surgeon and Superintendent of Jail, Moulmein, in place of Lieutenant Colonel A O Evans, I M S, proceeding on leave.

ON his return from leave Captain H H G Knapp, M D, I M S, is appointed to be Superintendent of the Insein Central Jail, in place of Lieutenant F C Fraser, M D, I M S.

THE services of Lieutenant F C Fraser, M D, I M S, are placed at the disposal of the Government of Bombay for employment in the Jail Department

ON being relieved by Lieutenant Colonel F R W C Carioll, I M S, Major A. Leventon, I M S, Civil Surgeon, Lakhimpur, is appointed Civil Surgeon of the Rajshahi District

ON being relieved by Major A Leventon, I M S, Major D R Green, I M S, Civil Surgeon, Rajshahi, is appointed Civil Surgeon of the Mymensingh District

Appointments, postings and transfers — The Lieutenant-Governor of the Punjab is pleased to make the following appointments, postings and transfers —

Name	Rank	Appointed	Posted or transferred to	With effect from	REMARKS
Lala Gudhari Lal, M B	Assistant Surgeon in charge of the civil hospital, Sialkot	Officiating Civil Surgeon	Sialkot	30th October 1909 (after noon)	Relieving Lieutenant Colonel D T Lane, I M S, transferred
Lieutenant Colonel D T Lane, M D, I M S	Civil Surgeon, Sialkot		Lahore	31st October 1909 (after noon)	Vice Lieutenant Colonel J A Cunningham, I M S, deputed to the office of Plague Medical Officer, Rawal Pindi, for training
Lala Jagat Narayan	Assistant Surgeon in charge of the civil hospital, Shahpur	Officiating Civil Surgeon	Shahpur	8th November 1909 (after noon)	Relieving Captain J G G Swan, I M S, proceeding on leave
Major G McI "C" Smith, M B, M R C P, I M S	Civil Surgeon, Murree		Shahpur	9th November 1909	Relieving Assistant Surgeon Jagat Narayan

ON return from leave, Major C H James, F R C S, M R C S, L R C P, I M S, resumed charge of his duties as Medical Adviser to the Patiala state on the forenoon of the 27th of October 1909,

HIS Excellency the Governor in Council is pleased to appoint Captain B Higham, M B, I M S, to act as Chemical Analyst to Government, pending the return to duty of Lieutenant Colonel T D O Barry, I M S, on until further orders

HIS Excellency the Governor in Council is pleased to appoint Lieutenant Colonel J G Hojel, M B, B S, I M S, on return to duty, to act as Presidency Surgeon, Third District with attached duties, pending further orders

HIS Excellency the Governor in Council is pleased to appoint Lieutenant H L Howell, R A M C, to act as Civil Surgeon, Ahmednagar, in addition to his Military duties, vice Captain C J Coppinger, M B, I M S, pending further orders

Captain E C G Maddock, M B, I M S, to act as Second Surgeon, J J Hospital, and Presidency Surgeon, First District

Captain A W Tuke, F R C S I, I M S, to act as Resident Surgeon, St George's Hospital
Dr J W Van Millingen, to act as Deputy Sanitary Commissioner, Western Registration District

LIEUTENANT COLONEL W H QUICKE, F R C S, I M S, has been granted, from the date of relief, such privilege leave of

absence as was due to him on that date in combination with furlough on medical certificate for such period as may bring the combined period of absence up to twelve months

HIS Excellency the Governor in Council is pleased to make the following appointments *vice* Lieutenant-Colonel W H. Quicke, F R C S, I M S, proceeding on leave, pending further orders —

Major Ashton Street, M B, F R C S, I M S, to act as Senior Surgeon, J J Hospital

MAJOR H SMITH, I M S, made over charge of the duties of Superintendent of the Jullundur district jail to Major E S Peck, I M S, on the afternoon of the 24th November 1909

LALA HARI CHAND, Senior Assistant Surgeon, made over charge of the duties of Superintendent of the Amritsar district jail to Major H Smith, I M S, on the afternoon of the 26th November 1909

THE Lieutenant-Governor is pleased to sanction the following acting promotion among Civil Surgeons —

Name	From	To	With effect from	REMARKS
Major A W T Buist, I M S	Civil Surgeon, 2nd class	Officiating Civil Surgeon, 1st class	13th September 1909	Consequent on the departure on privilege leave of Lieutenant Colonel W R Clark, I M S, officiating Civil Surgeon, 1st class

HIS Excellency the Governor in Council is pleased to make the following appointments *vice* Lieutenant-Colonel W H Quicke, F R C S, I M S, proceeding on leave, pending further orders —

Major Ashton Street, M B, F R C S, I M S, to act as Professor of Surgery and Clinical and Operative Surgery, Grant Medical College, Bombay

Captain E O G Maddock, M B, I M S, to act as Professor of Anatomy and Curator of Museum, Grant Medical College, Bombay

Captain A W Tuke, F R C S, I M S, to act as Professor of Materia Medica and Pharmacy, Grant Medical College, Bombay

THE services of Captain T S B Williams, M B, I M S, are placed temporarily at the disposal of the Government of Bombay for employment on special duty

THE services of Captain A W C Young, M B, I M S, are placed temporarily at the disposal of the Government of the United Provinces for employment in the Sanitary Department

THE services of Captain A W Overbeck Wright, M B, I M S, are replaced at the disposal of His Excellency the Commander in Chief in India,

CAPTAIN W D RITCHIE, I M S, Civil Surgeon, Chittagong, is allowed combined leave for two years, with effect from the date on which he may be relieved, viz, privilege leave for two months and twenty six days and furlough for one year, nine months and four days

THE services of Captain C A Godson, I M S, are placed temporarily at the disposal of the Government of Eastern Bengal and Assam

THE services of Captain T F Owens, I M S, are placed temporarily at the disposal of the Government of Bengal

THE services of Captain E C G Maddock M B, I M S, are placed permanently at the disposal of the Government of Bombay

CAPTAIN J O H LEICESTER, M D, F R C S, I M S, Civil Surgeon, Simla (East), is granted privilege leave for one month with effect from the date on which he avails himself of it

LIEUTENANT COLONEL H B MFLVILLE, M B, I M S, Civil Surgeon, Simla (West), is appointed to officiate as Civil Surgeon, Simla (East), during the absence on leave of Captain J O H Leicester, M D, F R C S, I M S, in addition to his own duties

THE services of Captain J Anderson, M B, I M S, are replaced at the disposal of His Excellency the Commander in Chief

UNDER the provisions of Articles 260, 303 (b) and 233 of the Civil Service Regulations, privilege leave for three months combined with furlough to Europe for one year and three months and study leave for six months is granted to Captain F V O Beit, I M S, with effect from the date on which he availed himself of it

THE services of Lieutenant S B Mehta, I M S, are replaced at the disposal of the Government of India in the Home Department

MAJORS TO BE LIEUTENANT COLONELS

Dated 30th September 1909

Henry Bruce Melville, M B
Joseph Charles Stoeke Vaughan, M B
Alexander Leonard Duke, M B
Joshua Chaytor White, M D
John Blackburn Smith, M B
Henry Francis Cleveland
Charles Henry Bedford, M D

LIEUTENANT TO BE CAPTAIN

Dated 1st September 1909

Kunwar Shumshere Singh

MAJOR F O'KINEALY, I M S Civil Surgeon of the 24 Parganas, is appointed to be Medical Inspector of Emigrants (Colonial Emigration) in addition to his own duties, with effect from the forenoon of the 10th November 1909

WITH reference to Government Notification No 6421, dated 15th December 1909, His Excellency the Governor in Council is pleased to make the following appointments *vice* Lieutenant-Colonel W H Burke, M B, I M S, retiring—

Lieutenant-Colonel J B Smith, M B, M Ch (R U I), D Ph, D T M & H (Camb), I M S Civil Surgeon of the First Class to be Civil Surgeon, Poona

Major H Bennet, M B, C M, B Sc, F R C S I M S, Civil Surgeon of the Second Class, to act as Civil Surgeon, Belgium

IN modification of so much of Government Notification No 6280, dated 8th December 1909 as relates to Captain E O G Maddock, M B, I M S, His Excellency the Governor in Council is pleased to appoint Captain L P Stephen, M B, I M S, on relief by Major P P Kilkelly, M B, I M S, to act as Second Surgeon, J J Hospital, and Presidency Surgeon, First District, as a temporary measure, pending further orders

IN modification of so much of Government Notification No 2451, dated 8th December 1909 as relates to Captain E O G Maddock, M B, I M S, His Excellency the Governor in Council is pleased to appoint Captain L P Stephen, M B, I M S, on relief by Major P P Kilkelly, M B, I M S, to act as Professor of Anatomy and Curator of Museum, Grant Medical College, as a temporary measure, pending further orders

THE undermentioned Officer has been granted by His Majesty's Secretary of State for India permission to return to duty, as advised in List, dated 17th November 1909—

Name	Service	Appointment	Date on which permitted to return
Anderson, Lt Col A R S	I M S	Civil Surgeon, Eastern Bengal and Assam	

THE services of Captain I D Jones, M B, I M S, are placed temporarily at the disposal of the Government of Bombay

THE services of Captain W S McGillivray, M B, I M S, are replaced at the disposal of His Excellency the Commander in Chief in India

Notice

SCIENTIFIC Articles and Notes of interest to the Profession in India are solicited. Contributors of Original Articles will receive 25 Reprints gratis, if requested.

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to THE EDITOR, *The Indian Medical Gazette*, c/o Messrs Thacker, Spink & Co, Calcutta

Communications for the Publishers relating to Subscriptions, Advertisements and Reprints should be addressed to THE PUBLISHERS, Messrs Thacker, Spink & Co, Calcutta. Annual Subscriptions to "*The Indian Medical Gazette*," Rs 12, including postage, in India Rs 14, including postage, abroad

BOOKS, REPORTS, &c, RECEIVED—

The Russianizing of the Medical Profession by the Political Machine of the A M A By Dr G F Lydston
Soured Milk and Pure Cultures of Lactic Acid Bacilli in the Treatment of Disease Herschell
The Dietetic Treatment of Diabetes Major Basu, I M S
A Geography of India Physical, Political and Commercial By George Patterson c l s, India
Bayer's Pharmaceutical Products
Surgical Anatomy MacEwen (Messrs Baillière Tindall & Cox)
A Handbook for Officers of the I M S in Military Employ By Capt H Boulton, I M S (Pioneer Press, Allahabad)
Aids to Microscopic Diagnosis Capt E B Knox, R A M C (Messrs Baillière Tindall & Cox)
Report of the Bombay Medical and Physical Society, Vol VIII, No 3
Studies upon Leprosy By Brinckerhoff and Moore, Marine Hospital Service, U S America
Traité de Pathologie, Exotique, Clinique et Thérapeutique By Ch Grall and A Claret I Paludisme By Ch Grall and E Marchoux (Messrs J B Baillière et fils)
Annual Report on the Civil Hospitals and Dispensaries under Government of Bombay, 1908
Syllabus Lond School of Tropical Medicine
Urgent Surgery By L élix Legars Translated by W S Dickie (Messrs John Wright & Sons, Ltd)
Pulmonary Tuberculosis By C Muthu (Messrs Baillière, Tindall & Cox)
Medical Examination Questions, set in Scotland (John Currie, 16, Teviot Place Edinburgh)
A Handbook of Medical Diagnosis By John C Wilson, M A, M D 422 Illustrations (J B Lippincott Co, London)
The Journal of Indian Art and Industry, Vol. XIII
Medical Libraries 1909 (New York Academy of Medicine)
Public Health Catechism Series 2nd Edition Revised by Dr W Robertson, Leith (Messrs E & S Livingston, 15, Teviot Place, Edinburgh)
A Text book of Nervous Diseases By Aldren Turner & Grainger Stewart (Messrs J & A Churchill, London, 1910)

LETTERS, COMMUNICATIONS, &c, RECEIVED FROM—

The Brusson Jeune Gluten Bread Establishments, Bedford Chambers London, Major J A Smith M D (Lond), I M S, Quetta Capt Wells, I M S Budaun, Lt R Knowles, I M S Aden, Major Hutchinson I M S, Belgium Major C Milne I M S Gorakhpur Capt T S B Williams I M S Bombay Lt Col Waddell, M S, Hastings, England Major L Rogers, I M S, Calcutta Capt F P Connor, I M S, Calcutta Major W D Sutherland, I M S, Saugor Lt Col D G Crawford, I M S, Hughly The Secretary Lond School of Tropical Medicine Major Clayton Lane I M S, Monghyr, Major C Barry, I M S, Ran goon Lt-Col W J Buchanan I M S, London Major R H Elliott I M S, Madras Major W E Scott Moncrieff, I M S, Parachinar, Hospital Asst Amir Chand Ludhiana Military Secretary India Office London, General Secretary, Far Eastern Association of Tropical Medicine, Manila

Original Articles

NOTE ON THE CAUSATION OF DISEASES OF THE HEART AND AORTA IN EUROPEANS IN INDIA *

By J. W. D. MEGAW, M.B.,

CAPT., I.M.S.,

First Surgeon, Presidency General Hospital, Calcutta

THE following analysis was made with a view to finding whether the experience of the Calcutta General Hospital would throw any light on the causation of heart disease in India. The majority of the patients dealt with are Europeans or Eurasians, who have spent the whole or the greater part of their life in India, but there are a good many who have recently come to India from Europe either as sailors, or to take up work in the country.

The figures deal with two sets of enquiries, one set (Series I) gives an analysis of the cases of disease of the heart and aorta recorded as occurring during a period of three years, these cases were under the care of several medical men, and at the outset of the investigation it became evident that a mere tabulation of the information found in the records would be of little value owing to the fact that the diagnosis made did not usually state the ætiological conditions which were responsible for the disease. It was, therefore, necessary to study the notes of each case and form an opinion regarding the ætiology of each case from the facts recorded, so that the figures given cannot claim to any great degree of scientific accuracy. So far as is feasible the possible fallacies connected with the figures will be stated, but making every allowance for these there are certain generalizations which can safely be made, which appear to be of some importance in connection with the question under discussion.

The second set of figures deals with the cases of the same diseases which have come under my personal observation during nine months of the past year, and though the number of cases is much smaller, the figures have the advantage of being the result of a direct enquiry into the points under investigation.

For the sake of clearness only the largest and most important groups of cardiac diseases have been analysed, viz. —

1 *Rheumatic Cases*.—Originating from the general infection which causes "acute" and "sub-acute rheumatism" and inflammation of the endo and pericardium.

2 *Syphilitic Cases*.—Including syphilitic arteritis of the aorta and its valves with the secondary changes resulting therefrom.

3 *Myocardial Degenerative Cases*.—In which signs of cardiac breakdown have made their appearance for the first time in advancing years, and in which there is no history of previous heart disease or of other disease to account for the condition.

In the table it will be noted that of 144 cases in the three years' record (Series I) 37 are clearly of rheumatic origin of these 12 were contracted in India, 21 were contracted in Europe, while 4 are doubtful.

But of the cases contracted in India the history made it clear that four suffered from the rheumatism which was the origin of the disease, either in Darjeeling or Simla, where the temperature conditions correspond much more closely to those prevailing in Europe than to those found in the plains of India. There are, therefore, only eight cases contracted in the plains against 25 contracted in Europe and the hills.

The group in which there is no clear history of rheumatism, but in which it was considered just possible that the disease may have originated from this cause does not show nearly so marked a preponderance in favour of cold climates as the places of origin, the figures being seven contracted in Europe and seven contracted in the plains of India. My personal view is that most of these doubtful cases were really not rheumatic, but they have been shown in that group to preclude any possibility of an unfair statement of the case.

In the rheumatic group there were two cases in which the disease appeared, while the patient was living in the plains and in which there was an active affection of the joints while the patients were in hospital, but there was only one case returned as acute rheumatism during the three years, and in it there was no mention of the heart being affected. There was only one case of chorea during the same period.

In the personally investigated series there were 14 cases of rheumatic origin during the nine months, all but three of these having been under my treatment in the wards of the hospital. Of these only four contracted rheumatism in the plains of India. One was a youth of 17, who had suffered from acute rheumatism and chorea in Calcutta at the age of 9, and who is now the subject of marked mitral regurgitation with a slight degree of aortic incompetence, another had a prolonged attack of rheumatism 12 years ago, at the age of 17, he has now mitral and aortic regurgitation. The other two gave histories of slight rheumatic affections in childhood, but there is no reason to doubt that their cardiac trouble resulted from these attacks.

Three cases which I saw quite recently are of some interest, one was a girl of 14, who contracted sub-acute rheumatism in Simla, this had not completely passed off when she was admitted to hospital, and she had also typical rheumatic pericard and endocarditis, the second was suffering from a mild attack of chorea.

* Read at the January Meeting of the Medical Section of the Asiatic Society of Bengal.

which had been contracted in Darjeeling, where she had also suffered from a severe attack of the same disease a year previously, there was no evidence of cardiac involvement, but in her elder sister who was the third case there was double mitral disease with aortic regurgitation and a history of chorea associated with rheumatism contracted in Darjeeling in early life.

During the period there was no case of acute or sub-acute rheumatism which had been contracted in the plains of India, but just after the end of the period under analysis there was a case of slight sub-acute rheumatism contracted in Calcutta in December in a man of about 35, in which, however, there is no sign of cardiac involvement. While at the Medical College about three years ago I saw a case of acute rheumatism complicated by endocarditis in a Mahomedan boy of nine years old. It seems safe to conclude that rheumatism of the type with which endocarditis is associated does definitely occur in the plains of India, but that it is much less common than in colder climates. There appears to be no evidence that its rarity is due to racial causes, but on the other hand if, as many suspect, the causal organism gains entrance by the tonsils, it is possible that a local depression of the vitality of the tissues caused by the passage of a current of cold air over the pharynx may be a factor of importance in predisposing to the entrance of the infection.

Possibly the same factor may have something to do with the rarity of scarlatina in the plains of India.

Dealing next with the syphilitic cases it must be confessed that the problem is not so simple as in the case of rheumatic affections, for here the history is not so readily obtained, especially in European patients, and the hospital records as a rule make no mention either positive or negative regarding the existence of a syphilitic infection. In the cases not personally examined it has been assumed that where aortic aneurism or aortic regurgitation have made their appearance in a young or middle aged man, who had not previously suffered from heart disease or rheumatism, the disease was probably the result of syphilitic end-arteritis. In favour of this view is the fact that in the cases seen personally and also in a large number of such cases seen at the Medical College a history of syphilis could generally be obtained, and also the fact that the pathological evidence so clearly enunciated by Major Rogers is altogether in favour of this hypothesis.

The features of the cases shown as probably syphilitic are (i) all the patients are males, (ii) most of them contracted the disease in the plains of India, (iii) the age incidence is markedly higher than in the cases of rheumatic origin.

Of the three cases of aortic aneurism which occurred during the nine months, two had a

history or evidence of syphilis, these were men in early middle life, too young to be likely subjects of senile degenerative changes, while the third, a man of 60, who had suffered from syphilis at the age of 20 showed no signs of arterial degeneration of the smaller vessels, and it is possible that the aorta may have yielded at a place weakened by an old syphilitic arteritis. It is a pity that more advantage is not taken of the fact that in India the problem of syphilitic affections of the circulatory system is simpler than in Europe where there is likely to be much more confusion with cases of rheumatic origin.

The degenerative series is made up almost entirely of those cases in which cardiac weakness has manifested itself for the first time after the age of 50, and in which there is no history of a previous illness of a nature calculated to give rise to heart disease. These cases are relatively few in the personally investigated series, chiefly owing to the fact that there happens to be a much smaller proportion of elderly patients in my wards than in the rest of the hospital, but to some extent also because I am not in the habit of retaining cases of cardiac breakdown under the heading of heart disease, unless it is clear that the cardiac trouble is primary and not merely part and parcel of a general senile degenerative process.

Most of the patients in this group showed mitral regurgitation with signs of failing compensation, some also had aortic regurgitation, and some had in addition signs of arterial degeneration, but it was not found possible to classify the cases into groups according to the exact cause, and so they are all included under the general heading of degenerative cases.

The features of the group are (i) the large proportion of female patients as compared with the other groups, (ii) the large number of Eurasians who suffered, (iii) the fact that nearly all the patients had spent the whole or the greater part of their lives in the plains of India, where the debilitating climatic conditions are distinctly calculated to bring about early enfeeblement of the heart.

An interesting group of cardiac cases is that found in the "Epidemic Dropsy" type of Beri-Beri. 12 such cases occurred in my wards during the hot months of the past year, nine of these were in Eurasians, two were in Armenians, and one only in a pure European. The only common factor that could be elicited in these cases was that curry and rice entered to a considerable extent into the dietary of all the patients. Details of these cases will be given in a separate note, so that it is unnecessary to consider them further at present.

It was found impossible to include figures dealing with diseases of the smaller arteries, owing to the insufficiency of the material at my disposal, but there is one point regarding which

CASES OF DISEASE OF THE HEART AND AORTA IN THE PRESIDENCY GENERAL HOSPITAL, CALCUTTA

CASES during the three years 1906-08--	SERIES I		SERIES II	
	Cases personally investigated during 9 months 1909--		Cases personally investigated during 9 months 1909--	
Cleelly Rheumatic	37	Cleelly Rheumatic	14	
Possibly Syphilitic	16	Possibly Syphilitic	7	
Degenerative	21	Degenerative	3	
Toxic, Infective, Congenital, etc	38	Associated with Renal Disease	2	
Heart Strain	12	Associated with Alcoholic Neuritis	1	
Incapable of Classification	2	Ulcerative Endocarditis	2	
	18	Associated with "Epidemic Dropsy" type of Beri Beri	12	
TOTAL	114			

ANALYSIS

Place of Origin	ANALYSIS						TOTAL
	Cleelly Rheumatic Series I	Possibly Rheumatic Series I	Rheumatic Series II	Probably Syphilitic Series I	Probably Syphilitic Series II	Degenerative Series I	
{ Contracted in the Plains Contracted in the Hills Contracted in Europe Doubtful	5 4 21 4	7 7 2	4 3 6 1	17 3 1	6 1	17 1	38
	37	16	14	21	7		
TOTAL	15	7	5				26
	5	3	2				
{ Mitral Regurgitation Double Mitral Mitral Stenosis Aortic and Mitral Reg Aortic Regurgitation Aortic Reg. and Double Mitral Mitral Regurgitation and Pericarditis Aortic Aneurism	9 1 1 2	4 2 1 2	2 2 1 2	11	1	6 2	No value specified 4
				10			
TOTAL	37	16	14	21	7		38
	31	12	10	19	4	24	
{ European European West Indian, &c	4 2	4	3 1	2	2 1	13 1	
	37	16	14	21	7	38	
TOTAL	32 5	11 5	11 4	21	7	27 11	38
	37	16	14	21	7		
{ Male Female	18 11 5 3	2 3 2 9	6 7 1	6 6 9	1 4 2	1 16 21	38
	37	16	14	21	7		
TOTAL	21-30 31-40 41-50 51-60 61-upwards						
	37	16	14	21	7		
TOTAL	37	16	14	21	7		38
	37	16	14	21	7		

a reference may not be out of place. At the Medical College I saw a considerable number of cases of hemiplegia in young and middle aged men who had recently suffered from syphilis, these were universally regarded as due to thrombosis following on syphilitic arteritis in the same class of patients another affection was remarkably common, this was known as "syphilitic paraplegia" and was generally considered as due to a syphilitic meningo-myelitis. Being struck by the fact that these cases occurred under exactly the same conditions as the hemiplegia, it occurred to me that an arterial lesion might possibly account for both diseases. It is quite exceptional to obtain an autopsy on these cases as they are rarely fatal, and they generally leave hospital as soon as it has become clear that further improvement in the condition is out of the question. The onset, however, is quite in keeping with the theory of an end-arteritis of the vessels of the cord leading to a gradual narrowing of the vessel and finally the rapid development of a thrombus. The following opinion of Allan Starr which I happened to come across a short time ago may be quoted in this connection—"While little attention has been paid to the diseases of the spinal blood vessels and the results of end-arteritis it is probable that these play a large part in the production of various forms of spinal cord disease. Recent pathological study seems to indicate that many cases of supposed myelitis are really cases of softening of the cord due to thrombosis of diseased blood vessels."

The great frequency of this disease in India and the mystery surrounding its nature are my excuse for dragging it into the present discussion and inviting the attention of medical men to the above suggestion regarding its possible causation.

As for its being much more common in Indians than in Europeans, one obvious factor is the greater thoroughness with which syphilis is treated in Europeans, but if the arterial hypothesis be correct it is possible that the lower blood-pressure and feeble circulation which have been shown by Capt McCay to exist in natives of India may be of importance in predisposing to the formation of thrombi. Here we would have the converse of what has been shown by Major Rogers to hold in the case of aneurism, where the higher blood-pressure is regarded as leading to a larger proportion of cases of aneurism in Europeans as compared with natives of India.

In conclusion, I must express my indebtedness to the various medical officers whose very careful detailed records of their cases made it possible to work out the preceding analysis of the cases occurring during three years in the wards under their care at the General Hospital.

Most of the cases were under the care of Col Pilgrim, Major Clayton Lane, Major Wilson, Major Murray and Capt Leicester, but it is obvious that these officers are in no way respon-

sible for the interpretation which I have placed on the cases, their concern was, of course, with the clinical aspect of the patients rather than with the aetiology.

GLEANINGS FROM THE CALCUTTA POST-MORTEM RECORDS *

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III—DISEASES OF THE CIRCULATORY SYSTEM

A LARGE proportion of cases of morbus cordis occur as a remote result of some previous specific affection, most frequently rheumatic or scarlet fever. The extreme rarity of these two fevers in India, and specially in Bengal, might be expected to greatly modify the relative incidence of the various cardiac diseases in tropical as compared with those of temperate climate. An extensive experience of *post-mortems* at the Calcutta Medical College Hospital fully confirms this surmise, while an analysis of the records from 1873 to the present time shows wide divergencies from the experience recorded in European text-books. Moreover, the very great frequency with which the more common cardiac affections of temperate climates have been diagnosed clinically in cases in which totally different conditions were actually found *post-mortem*, indicates that clinicians have not yet fully realised the great divergency of morbus cordis in India from European standards. A brief analysis of the relative frequency of the different forms of circulatory diseases in Calcutta as compared with those of temperate climates is, therefore, of considerable interest and importance.

THE RARITY OF ACUTE RHEUMATIC FEVER IN INDIA

The great outstanding cause affecting the incidence of cardiac diseases in India, and presumably in other tropical countries with a similar climate, is the great rarity of true acute rheumatic fever. Chronic rheumatic pain, commonly in middle aged and elderly patients, is frequent enough, but acute articular rheumatism, with involvement of one joint after another, is certainly decidedly rare in the plains of Bengal at any rate. Gonorrheal rheumatism is, on the other hand, quite common, and in the absence of a correct history may easily be mistaken for a rheumatic affection. There is also a form of very chronic disease of a number of joints with prolonged fever, of which I recently recorded a case, cured after three years by a vaccine made from a minute coccus cultivated from the patient's blood. This is not a very

* Being a paper read before the Medical Section of the Asiatic Society, Bengal, at the December Meeting, 1909.

rare disease, but I believe it to be quite distinct from rheumatic fever so commonly seen in temperate climates, from which it must be carefully distinguished. Excluding such diseases I have seen exceedingly few patients suffering from anything like an undoubted acute rheumatic arthritis. We have also to remember that septic cocci may produce joint disease closely simulating acute rheumatism, so that it is at present impossible to exclude such a cause in the few acute joint affections met with. I would therefore, go so far as to ask: Is there certain evidence of the occurrence in the plains of India of the acute rheumatic fever of temperate climates? Norman Chevers in his comprehensive Commentary on Diseases of India says: "The experience of a working life-time has taught me that acute rheumatism is rare in Lower Bengal." He only saw about one case a year, and he only knew of one fatal case in a native with pericarditis and pleurisy (possible pneumococci) and one in an European officer. He quotes Malcolmson of Madras as writing in 1835 that "The common acute rheumatism of Europe is very little known in India," while Morehead of Bombay remarked that "acute articular rheumatism is not so common in India as in colder climates, yet it is by no means rare," and often complicated by peri- and endocarditis. This statement was disputed by C A Gordon, who held that acute rheumatic pericarditis and endocarditis very rarely, if ever, occurred in India.

Scarlet fever is at least equally rare in India, the infection only occasionally being imported and rapidly dying out. Possibly the rash of seven-day fever may have sometimes been mistaken for scarlet fever in former days. Thus, the two main causes of acute endocarditis leading later to valvular disease are nearly completely absent from India, an occurrence which must profoundly affect the incidence of the different forms of morbus cordis in this country, including acute peri- and endocarditis, by far the most frequent cause of which in temperate climates is rheumatic fever. The frequency of the occurrence of rheumatic acute inflammatory affections of the heart of temperate climates in the Calcutta *post-mortem* records and museum will furnish the most reliable evidence regarding the frequency or otherwise, of rheumatic fever in Lower Bengal.

PERICARDITIS

In cold climates by far the commonest cause of pericarditis is acute rheumatism. Thus, Professor Osler states that the proportion of all cases of rheumatic origin is variously estimated at from 30 to 70 per cent by different writers. F T Roberts in Allbutt's System of Medicine states that he never saw a case of idiopathic pericarditis, but acute rheumatism, often with endocarditis causes more cases of pericarditis than all other causes put together.

We may therefore, safely conclude that one half of all pericarditis cases in temperate climates are due to acute rheumatic fever. Other causes are (1) septic disease, including pyæmia and puerperal fever, (2) other specific fevers such as scarlatina, (3) tubercle, which is usually described as being rare in temperate countries, (4) extension of inflammatory process from neighbouring organs, most commonly the lungs, but occasionally from the abdominal cavity through the diaphragm, (5) in kidney disease and (6) traumatic.

Table I gives the different forms of pericarditis recorded as one of the causes of death in the *post-mortem* records of the last 37 years at the Calcutta Medical College Hospital.

TABLE I—CLASSIFICATION OF CASES OF PERICARDITIS

Rheumatic		1	1
Septic and purulent	Pyæmic or puerperal	2	14
	Secondary to dysentery	3	
	With malignant endocarditis	1	
	Secondary to liver abscess	4	
	With acute meningitis	1	
Secondary to lung disease	Others	3	74
	With pneumonia { Marked	32	
	" Slight	33	
	" empyema	5	
	" acute pleurisy	3	
Tubercular	" congested lung	1	10
	With other diseases { Marked	6	
		4	
With other diseases	Bright's disease	1	3
	Cirrhosis of the liver	2	
Total		102	
Percentage of total subject		2.5%	

The most striking fact which stands out from Table I is the almost or complete absence of the rheumatic form of pericarditis, which forms the majority of all cases in temperate climates. In the one case classed as doubtfully rheumatic, the only symptom, pointing to this instance being possibly of that nature, was a history of severe pains all over the body, especially in the joints, but there was no swelling of the joints while the patient was in hospital, the clinical diagnosis having been pneumonia, and the lungs being very greatly congested *post-mortem*. There was no endocarditis, although this is nearly always present in rheumatic pericarditis, and the pericarditis consisted of only a slight injection with a very little lymph on the visceral layer of the pericardium only, which was pretty certainly secondary to the acute congestion of the lungs almost amounting to pneumonic consolidation. Yet this exceedingly doubtful case is the nearest approach to a rheumatic pericarditis in 37 years' *post-mortem* records totalling 4,800 subjects. It would be difficult to conceive a stronger piece of evidence as to the absence of genuine rheumatic fever from Calcutta, unless indeed rheumatic endocarditis should prove to be equally rare.

In the next place, Table I shows that pneumonia takes the place of rheumatic fever of temperate climate as being the one great cause of

pericarditis in the tropics About half the cases have been classed as slight, the pneumonia being evidently the primary and principal cause of death in these, while the pericardium showed an excess of turbid fluid with a thin layer of deposited lymph In those entered as marked there was a considerable excess of fluid containing lymph and a thick deposit all over both layers of the pericardium, this affection being clearly an important factor in producing the fatal termination of the illness In five cases empyema was present, and in three more acute pleurisy without actual consolidation of the lung Nearly all these cases were doubtless produced by the pneumococcus, which has been demonstrated in some of the more recent ones Lobar pneumonia is, as a matter of fact, even a more frequently fatal disease in tropical Calcutta than in many temperate climates, and is found in more of the *post-mortems* than any other disease, not excluding phthisis Pulmonary affections are thus far more deadly in Calcutta than malaria, dysentery, cholera, or any other of the so-called tropical diseases Pericarditis in temperate climates is said to be far more frequent in connection with pneumonia of the left than of the right lung In the present series the disease affected both lungs equally frequently When the right lung was effected, the middle or upper lobe was nearly always involved, commonly in addition to the lower lobe

The next most frequent form is the septic and purulent class, which would be still higher if the surgical *post-mortems* were also included, especially as regards the pyæmic and puerperal cases as well as those secondary to liver abscess The two cases secondary to sloughing dysentery are of interest, as are those accompanying acute meningitis and malignant endocarditis, which were probably pneumococcal in origin

Tubercular Pericarditis constitutes almost 10 per cent of the whole, a much larger proportion than in temperate climates, due mainly to the comparative rarity of acute rheumatic inflammation of the serous membrane of the heart Tubercle of this membrane is, however, common, being more frequently met with in tubercular disease in India than in cooler countries, as I showed in the second paper of this series—(*Indian Medical Gazette*, 1909)

The rarity of pericarditis complicating kidney disease is greater than can be accounted for by the comparative rarity of organic renal disease, especially parenchymatous nephritis in Calcutta, probably owing to the climate being less conducive to chills as an exciting cause of inflammation of serous membranes in persons predisposed by Bright's disease In the most marked case of pericarditis complicating cirrhosis of the liver, the latter disease was of the hypertrophic variety

The total number of cases of pericarditis formed only 2.5 per cent. of the whole series of subjects examined, and in nearly half of these the

pericardial disease was slight, and of quite secondary importance in the production of death Pericarditis of such a marked nature as to be likely to produce well-marked clinical signs and symptoms is a comparatively rare disease in tropical India as compared with temperate climates

ACUTE ENDOCARDITIS

Under this heading we have to consider two classes of cases, namely, simple and malignant endocarditis, although it must be borne in mind that the more severe form may occasionally be engrafted on to an originally mild disease Chronic endocarditis will be taken up later in connection with its common result, in producing permanent organic disease of the valves

Simple Endocarditis—All authorities with much experience in temperate climates are agreed that by far the most frequent cause of acute simple endocarditis is rheumatic fever, and that a considerable proportion of cases of this specific disease are complicated by endocarditis This is especially so in attacks in children and in chorea at the same age Further, a large proportion of rheumatic endocarditis cases are followed by later organic changes in the valves, more especially the mitral, so that if acute rheumatism is common in the tropics, its effects should be abundantly evident in such a large number of *post-mortem* records as that under consideration Other causes of simple endocarditis given by different writers are scarlet fever and very rarely some other specific fevers, and several infective diseases which may produce either a simple or a malignant endocarditis, such as those of septic, gonorrhœal and pneumococcal origin Acute rheumatism, however, stands out as the one great cause of acute endocarditis Table II shows the forms and frequency of the different forms of acute endocarditis and its effects other than organic valvular disease leading to morbus cordis, among 4,800 *post-mortems* in the last 37 years

Table II—ACUTE ENDOCARDITIS

Kind	Cases
Rheumatic or simple	1
Malignant or ulcerative	16

Thus, only one case which appears to be of rheumatic origin was found, and this was in an Eurasian nurse who had very likely been to England or in the hills and may have contracted the disease there Her case is such a pathological curiosity that it is worth while recording the principal points The patient was aged 20, had suffered from fever for six months, and gave a history of rheumatism three months ago with swelling and pain in her joints While in hospital there was swelling of the knees, elbows, wrists, ankles and metacarpal joints, dyspnoea and an apical systolic murmur *Post-mortem* there were firm pericardial adhesions, a rare condition in Calcutta, both the mitral and

aortic valves showed small granular vegetations on the margins as in acute rheumatism, while the valves of the right side of the heart were normal. The genito-urinary organs were healthy, and there was no sign of old gonorrhoeal disease noted. This case appears to be a genuine rheumatic one as far as can be judged by the records, but it furnishes no proof of the disease having originated in the plains of India, for the reason mentioned above. Stronger evidence of the extreme rarity, if not absolute absence, of rheumatic fever from Calcutta could not well be conceived than the failure to find a single case of typical simple endocarditis in a native of India in 37 years, *post-mortem* records, 93 per cent of the subjects being natives. When this evidence is combined with the equally marked absence of genuine rheumatic pericarditis the evidence becomes so strong that nothing short of bacteriologically confirmed cases will suffice to prove the occurrence of rheumatic fever in this part of the tropics, especially when we bear in mind how closely it may be simulated by the all too common general gonorrhoeal infections.

This question may be still further tested by an examination of the very valuable collection of pathological specimens in the museum of the Calcutta Medical College Hospital, which dates back to the museum of the Medical and Physical Society founded about 1825, and includes the survivals of Webb's classical *Pathologia Indica* first published in 1843. (I am glad to be able to say that a new edition of the Calcutta Medical College Museum Catalogue is now going through the press.) Among these collections of nearly a century there is only one which I consider to be probably rheumatic in origin, the remainder belonging to the class of malignant or ulcerative endocarditis. The exception is from a Hindu woman, aged 30, who is recorded to have died from "rheumatic fever" on the sixth day after admission, having presented articular inflammation and a loud mitral regurgitant murmur while in hospital. The following is the description of the specimen in the catalogue: "Acute valvular endocarditis, with articular rheumatism." The curtains of the mitral valve are fringed with recent warty vegetations and the endocardium of the whole left ventricle is abnormally thickened and opaque looking. "Muscular structure healthy." No other details are available, so it is impossible to exclude such other possible causes as gonorrhoea, septic or pneumonic infections. Even if this specimen be regarded as rheumatic in nature, the fact that it is sole one in the museum is still sufficiently striking a fact.

Malignant Endocarditis—The only form of acute endocarditis in Calcutta which occurs sufficiently frequently to be more than a pathological curiosity is the malignant or ulcerative variety. Although the 16 cases shown in Table II are but a small number, yet they present some points of interest. Table III shows the relative

frequency with which the different valves were attacked.

TABLE III—VALVES AFFECTED IN MALIGNANT ENDOCARDITIS

			Osler's cases	
Left heart only	Mitral only	3	Total aortic	11 94
	Aortic only	4		
	Mitral and aortic	4		
Both sides	Aortic and tricuspid	3	" mitral	7 115
		1	" tricuspid	5 19
Right heart only	Tricuspid only	1	" pulmonary	1 15
	Pulmonary and tricuspid	1		

These figures show a fairly close agreement with those of the much larger series of Osler as regards the relative affection of the right and left sides of the heart. They differ, however, in one very important respect, namely, that in the Calcutta series the aortic valve is considerably more frequently involved than the mitral, while in Osler's it is the other way about. In Osler's series the aortic and mitral valves were both affected 41 times, and the right heart alone in nine cases. This is of a point of great interest, for I shall show later in this paper that the same relationship holds good with regard to chronic valvular disease in India, so that the great affection of the aortic valve by the ulcerative process in the tropics is in accordance with the general experience of temperate climates that previously diseased valves are most liable to be infected by malignant endocarditis.

Age—Half the subjects were not over 30 years of age, and another fourth from 30 to 40.

Sex—Thirteen out of fifteen noted were males and only two females.

Causation—Unfortunately the great majority of the cases occurred before a bacteriological department was formed at the Medical College Hospital, so that the exact causative organisms cannot be given. The records, however, show that in seven cases pneumonia was associated with the malignant endocarditis, and in three of these there was also purulent meningitis, the pneumococcus having been cultivated by me in the only two which I had an opportunity of examining. It is, probable therefore, that the pneumococcus is the main causative agent of malignant endocarditis as well as of pericarditis in tropical Calcutta. In one there was both gonorrhoeal arthritis and pelvic peritonitis, which was doubtless the origin of the heart infection, in one acute aortitis, and in another acute pericarditis complicating the disease.

CHRONIC VALVULAR DISEASE.

The evidence already adduced regarding the extreme rarity of rheumatic endocarditis in Calcutta makes the incidence of chronic inflammatory and degenerative lesions on the different valves of the heart a matter of extreme interest. The results of my analysis are briefly summarised in Table IV, and they are contrasted with the

statistics collected from German sources by Parrot, as quoted by Osler

TABLE IV.—THE INCIDENCE OF CHRONIC VALVULAR DISEASES IN CALCUTTA

	Calcutta		Europe	
Tricuspid Stenosis	1	1	Tricuspid	16 10%
Pulmonary Incompetence	2	2	Pulmonary	11 10%
Mitral { Incompetence	5	23	Mitral	621 58 7%
Stenosis	18			
+ Aortic Stenosis	4			
+ Aortic Incompetence	3			
Mitral Stenosis	3	7	Aortic	350 35 9%
Stenosis & Incompetence	3			
Aortic Incompetence	11	65	Total	1,058 —
Incompetence	51			
Total	95	105	Total	51%
Percentage of total Subjects examined	21%		51%	

The first important point to note in the Table IV is the much greater rarity of chronic valvular disease in Calcutta than in Europe, the incidence in the tropical town being but one-fourth of that in European cities, namely, 2 per cent against 8 per cent. This is doubtless accounted for by the practical elimination of acute rheumatism as a cause in Calcutta, although this is the principal forerunner of valvular disease in temperate climates. If these figures are otherwise comparable, apparently about three-fourths of the total valve diseases are caused by rheumatic fever in Europe.

Secondly, we find a very marked difference in the incidence of these processes on the several valves of the heart in the two series. As is well known organic disease of the mitral valve is much more common than that of the aortic cusps in temperate countries, but in Calcutta the reverse is an even more marked feature, aortic disease being more than twice as common as mitral. These figures all refer to actual organic structural lesion of the valves themselves, mere widening of an auriculo-ventricular orifice from weakness and dilatation of the heart muscle from various causes not being included. Mitral and tricuspid regurgitation from such ventricular dilatation is common enough in the tropics as a result of angina and acute specific fevers. This striking difference is almost certainly due to the absence of rheumatic fever as a cause of later valvular disease in tropical India, for that fever is well known especially frequently to involve the mitral valve, while the aortic cusps are more frequently damaged by degenerative changes, chiefly of an atheromatous nature. Closer study of the data will be of interest from this point of view, and may perhaps enable us to obtain a clearer view of the causes of valvular disease, other than acute rheumatism, than is

possible in countries where the whole subject is overshadowed by the preponderating share of the latter disease in damaging the valves of the heart, and so leading to morbus cordis at a much later date when a reliable history of the previous illnesses may not be obtainable.

Tricuspid Stenosis—The only case of organic disease of the tricuspid valve in the 4,800 *post-mortems* analysed was one of tricuspid stenosis, secondary to more marked mitral stenosis, and also accompanied by extensive atheroma of the pulmonary artery. The great rarity of tricuspid stenosis in India is doubtless associated with the comparative infrequency of mitral constriction to be referred to below. Its occurrence in only one case out of thirty of mitral stenosis is, however, remarkable, unless it be, because the mitral disease was commonly not of rheumatic origin.

Pulmonary Incompetence—Two examples of this rare condition resulting from organic affection of the pulmonary valve occurred. In one the defect was due to adhesion of a pulmonary cusp to the wall of the artery at the seat of the bulging of an aneurism of the first part of the arch of the aorta, which had opened into the pulmonary artery a little above the valve. The case resembles those recorded by G. Newton Pitt. The other case was an extraordinary example of extreme atheroma and dilatation of the pulmonary artery, and distortion of the pulmonary valves due to atheroma, which I have already recorded in detail in a paper on primary atheroma of the pulmonary artery as a cause of cardiac disease. An account of pulmonary atheroma which I wrote at the request of the Principal has recently appeared in the Annual Report of the Calcutta Medical College,* so need not be further dealt with here.

With the exception of the comparative rarity of tricuspid stenosis in India, the diseases of the valves of the right side of the heart in Calcutta do not differ much from those met with in temperate climates.

Mitral Regurgitation—The most frequent organic valvular change produced by rheumatic endocarditis is thickening and shrinking of the mitral cusps producing permanent incompetence and regurgitation, frequently complicated at a later stage by more or less narrowing of the mitral orifice in addition. The bare fact that only five per cent of the chronic organic valvular lesions in my Calcutta series belonged to this class most strongly confirms the conclusion already arrived at, on other grounds, as to the extreme rarity of rheumatic fever as a cause of organic heart disease in India. Moreover, two of these five patients died of chronic bronchitis and emphysema, aged 55 and 65 respectively, and a third, with slight narrowing as well as incompetence of the mitral, was aged 55, and showed extensive atheroma and

calcification of the aorta down to the abdominal portion. Further, there was no sign of previous pericarditis in any of the five cases, so that the series as a whole differs very widely from the class of case of mitral regurgitation usually produced by antecedent rheumatic affection, and certainly affords no evidence in favour of the occurrence of that specific fever in the plains of India.

Mitral Stenosis—Constriction of the mitral valve is attributed to antecedent rheumatism in a large proportion of cases in temperate countries, where it is a very common form of valvular disease. In Calcutta it is distinctly rare, at least in the *post-mortem* room, although not infrequently diagnosed in the wards. Still it is by no means so uncommon as mitral incompetence due to organic change in the valve itself, for in the 37 years' records 25 cases of distinct mitral stenosis were met with, against only five of incompetence. The fact that G. Samways found no less than 70 cases of mitral stenosis in four years' *post-mortem* records at Guy's Hospital will suffice to indicate the comparative rarity of this lesion in Calcutta Medical College Hospital with some 400 beds. Further analysis brings out several points of interest.

The Sex—Incidence shows nineteen males to only five females. After allowing for the fact that just three-fourths of the *post-mortem* subjects are males, this still leaves a relative preponderance of males affected. In Europe, according to the late Sir William Broadbent, different authors agree that from two-thirds to three-fourths of all cases of mitral stenosis occur in females, although the fact is not easy to completely explain. The ages of the Calcutta series averaged 30½ years, and those of the native patient 30 years, which is approximately the same as in Europe, the slightly lower age in Calcutta being accounted for by the general average age of the *post-mortem* subjects being considerably below that in an European series. Only two were not over 20, seven from 21 to 30, eleven from 31 to 40, and only one over 40, the ages of the remainder not having been recorded.

As regards race fourteen were Hindus, only two Mahomedans, four Europeans and one a Chinaman, the rest not being noted. As only 7 per cent of the *post-mortem* subjects were Europeans, they were affected almost three times as often as natives, probably on account of some of them having suffered from rheumatism before coming to India. Hindus showed a much greater prevalence than Mahomedans.

Of still greater interest and importance are the complications met with in this series of mitral stenosis cases. In five the cause of death was some other serious disease, such as dysentery, liver abscess and kala-azar, while in three more the heart affection was comparatively slight and not the sole cause of death. A more striking fact was the great frequency with which the mitral disease was complicated by serious

organic affection of the aortic valve producing a marked degree of aortic stenosis in five and of aortic incompetence in two. Thus in no less than seven of the 25 cases of mitral stenosis yet more serious disease of the aortic valves was also present. Nor is this all, for in five more of the cases, a slighter degree of atheroma or thickening of the aortic cusps was recorded, so that in almost half the total cases some organic affection of the aortic orifice complicated the mitral stenosis. This is very different from the usual conditions in temperate climates, in mitral stenosis of rheumatic origin, and once more points to some other antecedent cause of mitral constriction in tropical India. It will be more convenient to postpone the discussion of what that cause may be until the facts regarding aortic disease in Calcutta have also been dealt with. It will suffice at this point to record my opinion that the very great majority of the mitral stenosis cases met with in the series under examination are not of rheumatic origin, while if the true causation can be ascertained it may also prove to be of greater importance in temperate climates also that is at present allowed.

Aortic Stenosis and Incompetence—Contrary to European experience the great majority of chronic valvular lesions met with in Calcutta belong to this class, namely, 65 cases against 23 of pure mitral affections, both valves having been involved in the remaining seven instances. Incompetence of the aortic valve is so frequently accompanied by narrowing of the aortic orifice, especially when calcification is a marked feature of the lesion, that the two conditions may most conveniently be considered together as the same pathological changes enter into the causation of both defects. In working out Table IV cases in which stenosis was of almost a pure nature and those in which it appeared to be the predominant lesion are included under that head, while those cases in which regurgitation was clearly the most serious condition have been entered under the head of aortic incompetence, although some degree of stenosis may also have been present. Further analysis brings out the following points, the cases of combined aortic and mitral disease having been included in the figure.

The sex was noted in 66 cases, 56 of whom were males and 10 females, so that after allowing for the fact that three-fourths of the total subjects were males, there is still a decided preponderance among men, as is markedly the case in temperate countries, probably to an even greater extent than in India. We have already seen that mitral stenosis also is most common in males in India.

The age incidence is of special interest in connection with the degree of atheroma of the aorta and the frequency of granular kidney with which aortic valve disease is so frequently associated. The data are given in Table V, the cases being classed both as regards age and the

degree of atheroma found in the thoracic aorta. The figures in brackets show the numbers in which some degree of granular kidney was also present. When only scattered patches of atheroma were noted it has been entered as slight, when well marked but not extreme as "marked," and still more extensive lesions as "very marked."

TABLE V—AGES AND DEGREE OF ATHEROMA IN AORTIC DISEASE

Atheroma	To 30	31-40	41-50	Over 50	Total Percent age
Nil	3	4 (1)*			7 12.2
Slight	5 (2)	3 (1)	1		9 15.8
Marked	7 (1)	10 (5)	3 (1)	3 (2)	23 40.4
Very marked	2	6 (4)	6 (4)	4 (3)	18 31.6
TOTALS	17 (3)	23 (11)	10 (5)	7 (5)	57
Natives only	15	18	9	1	43
Percentage	35.9	41.9	20.9	2.3	
	75.8				

* The figures in brackets show the number of cases complicated by some degree of granular kidney.

The average age was $36\frac{1}{2}$ years, but low as this figure is, it is raised by the inclusion of several Europeans, whose ages averaged 45.3 years. The average age of the native subjects of aortic valvular disease was but 32.3 years, or only just higher than that of the mitral stenosis series in natives, whose ages averaged 30 years. There is, thus, no marked difference in the ages of the mitral stenosis and aortic valvular diseases in India such as occurs in temperate climates, and consequently, as far as the ages are concerned, there is no reason to expect that the causation of the two affections is commonly different in nature. The early ages at which marked organic disease of the aortic valve was found in the great majority of cases (namely, not over 40 years in 70 per cent) is especially noteworthy in the absence of rheumatic fever as a cause. That infection is principally responsible for early aortic disease in Europe, while the other great factor in the etiology of aortic valve disease is atheroma, which is much commoner in late middle and advanced age, except the syphilitic variety, which is more frequently encountered in early middle age.

The frequency of atheroma of the aorta in this series is very noteworthy. Thus, in only 12.2 per cent was it recorded as being absent, while in 15.8 per cent more it was slight in degree. In the remaining 72 per cent marked or very marked atheroma was recorded. Even in patients dying of aortic valve disease when not over 40 years a considerable majority showed marked atheroma of the aorta. It will be shown later in discussing atheroma in natives of India, that as soon as the age of 40 years is exceeded, there is a rapid rise in the prevalence of extensive degenerative changes in the aorta,

but up to 40 anything more than slight atheroma of the aorta is only found in 32 per cent of native subjects. It is clear from this that the great majority of aortic valvular diseases are not produced by the arterial degeneration of advancing years. The presumption then is, that the principal factor in their production is the early atheroma of syphilis. This conclusion is supported by the fact that in several of the cases gummata were found in the internal organs after death, while gummatous affection of the heart muscle is not very rare in Calcutta, and evidence of endocardial thickening and opacity probably due to the virus of syphilis is also to be found in the records. If this view is correct it raises the question as whether the cases of mitral stenosis, which are so commonly associated with aortic valve disease in Calcutta, may not also be syphilitic in origin, for we have seen there are extremely strong grounds for thinking that they are not secondary to rheumatic fever. I am inclined to think that such is the case, for the similar age incidence points to a common origin of the mitral and the aortic valve lesions.

Lastly, we have to consider the association of granular kidney with aortic valve disease. The figures in the table show that the majority of the cases of aortic valve disease in persons over 40 years of age also showed some degree of cirrhosis of the kidney, while in all but one the atheroma of the aorta was of a marked nature. In these cases in later life high pressure connected with kidney disease and arterio-sclerosis were no doubt intimately associated with the aortic valve affection. Below the age of 40 granular kidney was only found in about one-third of the cases, but this is a very much higher proportion than in subjects of this age dying of other diseases. When present it is probably an important factor in the production of the valvular lesions, for the additional strain caused by the high pressure of cirrhotic kidney disease would act very deleteriously on a valve already injured by syphilitic or other damaging affection.

Another possible cause of chronic aortic valve disease is a previous endocarditis due to one of the organisms which produce the malignant ulcerative disease, but of a milder and recoverable nature. Cases of chronic gonorrhoeal rheumatism, which are very common in India, might easily be conceived to produce such an infection, but I am not able to produce any definite evidence of such an occurrence.

Whatever are the exact causative agencies in producing aortic valve disease in the tropics, the important fact remains that it is much the most common and important form of chronic endocarditis, and that the evidence at present available points to syphilitic atheroma as the most important factor in its origin.

(To be continued)

A NOTE ON THE TECHNIQUE OF INTRACAPSULAR EXTRACTION

By W F McKECHNIE, M B,

CAPT, I M S,

Civil Surgeon, Etawah

IT is satisfactory to note that members of the I M S and others are now in increasing numbers making pilgrimage to Jullundur to see Major Smith and his intracapsular operation. It can be safely asserted that no one from merely reading the descriptions so far published could do the operation in a series of cases as it should be done. He would have to go through the painful process of learning by experience how to do it, and, curiously enough, even though the pilgrimage is made to Jullundur it is almost impossible to note correctly all the points which should be noted from merely seeing the operation done. I know this from my personal experience and from watching other people learn. This is exemplified in Major Birdwood's account of the operation published in your January number. I am sure Major Birdwood will pardon me for drawing attention to his mistake, because it is important for the future of this operation, which I and all those who have fully mastered it hold to be incomparably the best operation for cataract, that the descriptions of technique which may be published should be accurate. The diagrams illustrating Major Birdwood's paper do not show the correct position of the assistant's right hand. This position being quite one of the most important points in the operation so far as safety from escape of vitreous is concerned, and a part of the technique in which probably all untaught surgeons who have tried the operation have failed, should have been shown correctly.

I rejoice to read that Major Birdwood has become a convert to the Smithsonian method, but if his assistant holds the hook in the manner illustrated there will be a danger of his again relapsing to the older method.

In the position shown, the wrist and forearm of the assistant, being more or less horizontal, occupy the space in nature required for the operator's left arm and hand, rendering accurate technique on the surgeon's part impossible, moreover, owing to the cramped position of the assistant's hand he loses control of both lid and eyebrow. The position shown in Major Birdwood's diagram is the one which the assistant naturally adopts, and hence it is probably the cause of failure on the part of so many surgeons.

The correct position is one in which the assistant holds the right forearm, palm and fingers vertically at right angles to the horizontal patient, and with the palmar aspect of the palm and fingers looking towards the patient's feet. The handle of the hook should lie along the palmar aspect of the index, and the backs of the nails of the other fingers should rest on the superciliary ridge and forcibly keep the muscles of the eyebrow on the forehead. The index should be

able to move freely to guide the hook as required, the hook being held between the index and thumb. The wrist should be flexed, not extended.

Any one who will try this position will find that it is one requiring practice. The success of the surgeon will depend on his being able to make his assistant acquire it. I speak from experience as I have had to teach the position to four different assistants, and the operation is made really difficult and dangerous by an inexperienced assistant.

A reviewer in the *Lancet*, Dec 25th, 1908, page 1894, briefly referring to the work of Smith and his pupils during the past year concludes by saying that "The extraordinary infrequency of the complication (escape of vitreous) in the hands of Major Smith and his supporters as compared with other operators of at least equal status still remains unexplained." I hope that this note should it catch the reviewer's eye, may afford part of the explanation he lacks.

THE PREVENTION OF HYDROPHOBIA

By MAJOR F A SMITH, M D (LOND), D P H (CAM),

Civil Surgeon, Quetta

JUDGING from the Kasauli returns there is an apparent, and from the experience of certain towns, an actual increase of hydrophobia in India. Regulations for restricting the number of dogs living in Cantonments and Civil Stations are made and enforced, but they vary from place to place and perhaps a useful purpose would be served by a discussion and investigation of such regulations in the columns of *The Indian Medical Gazette* with the object of evolving a set of Model Bye-laws to serve as a basis for future rules, with such alterations and additions as local circumstances necessitate.

In a country of the size of India a general muzzling order, we may admit at the outset, could never be enforced, and a local muzzling order, to be of benefit, would entail the hardship of being a permanent one, as rabies would still be continually introduced from the districts.

We may also take as an axiom that the vast majority of cases of hydrophobia, and suspected hydrophobia, result from the bites of what may be called respectable dogs, either belonging to Europeans, or otherwise under control, they contract rabies of course elsewhere from the panah or jackal, but the conclusion holds good that the incidence of hydrophobia bears a simple relation to the number of dogs kept in a station.

The following rules are suggested for a town, the different areas of which are controlled by different authorities.

Rule 1 Tax —(a) A tax of Rs per annum shall be paid for each dog kept by persons either living or constantly employed within limits.

(b) Volunteers shall be permitted to keep one dog which shall be registered and licensed and provided with a badge free

(c) Puppies up to three months old are exempt

(d) For dogs either imported or attaining the age of three months during the last six months of the financial year the tax shall be Rs

Rule 2 Badges—(a) A red enamelled tin badge $1\frac{1}{4}$ inches in diameter, numbered, and of a distinctive shape for each year shall be issued free for each dog licensed

(b) The badges are not transferable

(c) The badge shall be always worn hanging down from the collar of the dog for which it is issued

Rule 3 Method of dealing with Dogs without a Badge—(a) Such dogs shall be caught by men specially employed for this purpose and taken to the dog pound

(b) Those in a diseased condition shall, and those without a collar, may be destroyed at once

(c) Others shall be detained in the pound and if claimed by their owners within a period of seven days they may be released on payment of the expense of their keep, and on their owner taking out a full year's license if he has not previously done so. If unclaimed at the expiry of seven days they may be sold to the highest bidder, and if not sold they shall be destroyed

Rule 4 Dogs Licensed elsewhere—(a) No dogs licensed elsewhere shall be permitted to enter the limits without taking out a local license

(b) Licensing authorities of neighbouring towns or districts, if their rules differ from these, be required to issue badges that cannot be mistaken for the badge

(c) At all action posts, dogs accompanying their owners from without shall be detained and chained up until their owners again leave, chains and water in troughs will be provided, the owner providing food. Such dogs unclaimed within 24 hours shall be dealt with as in para 3

Rule 5 Visitors' Dogs—There will be no period of exemption from taxation of dogs owned by visitors, but if they are staying less than three months a license and badge will be issued on payment of a tax of Rs

Rule 6 Penalty for Non-compliance—A maximum fine of Rs 50 shall be the penalty for infringement of these Regulations by the owners of dogs and, in addition to this, a maximum fine of Rs 5 for each day the infringement continues may be imposed

Rule 7 Co-operation—(a) Other authorities be asked to co-operate by adopting as far as possible similar rules, and by issuing each year similarly shaped and coloured badges

(b) Dogs licensed by each authority in the town will be free to enter any part of the town

Rule 8 Registration—The license register shall contain the name and address of owners and such description of the dogs as will enable them to be identified

Rule 9 Muzzling Dogs—Should these rules fail of their object in preventing hydrophobia, they will be supplemented by a muzzling order to be adopted at the discretion of the local authority, for all dogs either living in, or entering the town

Rule 10 Notification of Regulation—These Regulations shall be given such publicity as is considered necessary by the local authority. Subsequent to which publication the onus of being acquainted with and conforming to them shall be upon the owners of dogs

Explanation of Rules

Rule 1—The tax, if possible, should bring in a sufficient income to pay for the application of the rules, but if this is not practicable the income under this head should be supplemented from other sources of revenue of the local authority. Volunteers receive the same concession as N C O's and the rank-and-file of the Regular Army, none of whom should be allowed to keep without payment more than one dog. Volunteer Officers should not be exempt

Rule 2—The badges could be obtained at small cost from any firm that deals in enamelled tin-ware. Dogs wandering without their badges do so at their owners' risk

Rule 3—The implement for catching dogs consists of a long pole opening at the lower end like fire tongs, at the end of which are two halves of a circle to go round the animal's loin, with a ring that can be slipped down to bolt the tongs. With this they are caught and placed in an iron cage on wheels and thus removed to the pound. At the pound those dogs to be destroyed may be killed by strychnine, or preferably to placing them in a small mud kennel with a well fitting lid and with a grate at one side in which charcoal is burnt, they rapidly become asphyxiated. By this method of dealing with stray dogs, the owner of a dog he values has an opportunity of recovering it, and the objectionable practice of poisoning dogs in public is avoided

Rule 4—Reciprocity in licensing will depend on local conditions, as the proximity of licensing areas, the strictness with which the rules are applied in each area, and the amount of the tax. Animals from a lightly taxed area, with a lax supervision should not be given the freedom of a well regulated area

Rule 5—This is inserted more as a deterrent than as a prohibition to visitors bringing their dogs with them

Rule 6—The penalties are high as the danger from the hydrophobia is great, probably one or two prosecutions would suffice to advertise the fact that the rules would be rigidly applied, and afterwards there would be but little evasion

Rule 7—It would be preferable for the various authorities in any town to come to an agreement beforehand as to the adoption of the rules, instead of each acting separately

Rule 9—This would require the sanction of Government which might be applied for beforehand and adopted when the local authority thought necessary

TRANSMISSION OF PLAGUE IN THE ABSENCE OF RATS AND RAT FLEAS

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On July 25th, 1909, plague broke out in the villages of Kyaukpın and Ywatha, Meiktila district. One case occurred on that date and two further cases occurred on the 26th and 29th July respectively. Dead rats were found in the villages (Kyaukpın and Ywatha are practically one) and in these rats *B. Pestis* was found. The disease had been imported by a case from Yamethin. I visited the village for the first time on August 1st, and gave orders for evacuation, which was completed by August 3rd, the villagers, some 900 in number, removing to mat shelters in the surrounding fields.

It was reasonably hoped that the only further cases, if any, would be amongst persons who were already infected on the date of evacuation.

The further sequence of events was as follows—

On the 5th, 7th, 8th and 12th August one case occurred each day amongst these villagers segregated in the fields. On the 16th there was one case, on the 17th two cases, on the 24th two cases. These results were considered very disappointing, and not as good as those generally obtained by the complete evacuation of infected villages, a measure, which has been very successful in this division.

I had then to consider whether the evacuation was not thoroughly done, or whether some other factor was at work of whose existence we were ignorant.

Accordingly on the 15th August every mat shelter and also the people's clothing, bedding and property of every sort was thoroughly searched by coolies to see if any rats had accompanied the people from the village, or if any dead rats had been removed inadvertently along with their property. This search was very thoroughly carried out, but not a single rat was found, dead or alive.

The fact then appeared that plague cases were occurring in the absence of rats.

Somewhat puzzled by this, although I had by now suspicions of what was happening, on the 18th August I again removed all the villagers to new sites in the fields varying in distance from 400 yards to 1½ miles from the village. In spite of this, two more cases occurred amongst these people on the 24th August. Of the nine cases which occurred after evacuation seven occurred in families in which there had already been a

previous case, while in two cases no direct connection could be made out.

All the nine cases were bubonic in type, seven were fatal, none showed any pneumonic symptoms, putting infection by sputum out of court. On the other hand, the factor of *direct contact* with a previous case was evidently an important one, it was present in 77 per cent of the cases.

The infection then might have taken place either by means of (a) infected discharges or (b) some parasite. As regards (a), the report of the last plague commission states that even in a septicæmic case the infectivity of urine or faeces is small.

Further pneumonic plague was not present. As regards (b), I was aware of the researches of Yerjbitski, who had proved that plague can be transmitted by other parasite than the rat-flea.*

On August 15th I started collecting bed-bugs obtained from the bedding, clothing, mats, etc., of the segregated villagers. The blood contained in the alimentary canal of these parasites was examined for plague bacilli.

All the bugs were of the *Cimex Rotundatus* variety.

The results of the examination may be classified into two sets.

Series I—Consists of bugs collected indiscriminately from infected and non-infected huts.

Number of bugs examined	24
Number containing <i>B. Pestis</i>	1
Percentage of infected bugs	4 14%.

Series II—Consists of bugs collected from infected huts only.

Number of bugs examined	27
Number containing <i>B. Pestis</i>	6
Percentage of infected bugs	22 2%

These results are open to a very valid objection, *viz.*, the presence of *B. Pestis* in the contents of the alimentary canal of the bed-bug is vouched for merely by its recognition under the microscope. I was not able to make cultures owing to want of facilities, but I am myself perfectly satisfied that the bodies observed were plague bacilli.

I have examined some 800 slides of human and rat's blood for plague bacilli since January.

The bacilli showed in all cases polar staining, in two slides they were absolutely typical and in others, they showed considerable divergence from the normal type, they were enlarged, vacuolated, and some took up the stain badly. I presume that this is due to the action of the alimentary juices of the bacilli.

In order to obtain further proof, the following experiment was conducted. A number of bed-bugs were obtained from Meiktila jail where there has never been a case of plague, and a healthy rat was also obtained from Meiktila town. On August 21st I took five bed bugs out

* *Journal of Tropical Medicine and Hygiene*, May 1908

to Kyaukpín and allowed them to bite the leg of the case which occurred on the 16th and was still alive. This case had a well marked bubo and a temperature of 102°

The bugs were allowed to bite for ten minutes and were not removed until it was seen that they actually contained blood. They were then brought back to Meiktila. On August 22nd they were applied to the shaved abdomen of a rat but all refused to bite, owing, I fancy, to the soap used in cleaning the rat. On August 23rd they were again applied to the rat's abdomen and bit freely. The rat was carefully fed and watered, but on the night of the 26th-27th it died. Smears made from this rat's spleen showed plague bacilli in very large numbers, and of most typical appearance, showing well-marked bi-polar staining. It may be noted here that an interval of 48 hours elapsed between the time when the bed-bugs bit the plague patient and the time when they bit the rat, and that after the rat was bitten only some 60 hours elapsed before it died of plague.

Following out Verbitski's methods, I collected bed-bugs from the clothing and bedding of infected cases and crushed them into agar tubes in order to get a culture of *B. Pestis*. This was tried on three occasions, but each time the growth of non-pyogenic organism, moulds, etc., was so vigorous that no growth of *B. Pestis* was detected. There was no proper laboratory available, and it was difficult to carry out this part of the investigation with any hope of success. As regards the epidemic, single cases kept on occurring up to September 16th. The Civil Surgeon, Meiktila, and myself decided to allow the people to return to the village on 18th September. No further cases occurred after this which is curious, as between 10th and 16th September, seven cases occurred. With the return to the village the epidemic ceased absolutely, and there have been no cases since December 3rd. Verbitski used very large numbers of bed-bugs in his series of 18 experiments, and amply proved that the bed-bug can transmit plague from guinea-pig to guinea-pig. He also explains how infected bugs might convey the disease to man either by "directly introducing bacilli adherent to its proboscis, or owing to the irritation it produces it may be crushed and the infective contents rubbed into the slight puncture occasioned by its bite." This point is proved in his experiment No. XLII in which the hind legs of six guinea-pigs were slightly scratched and the contents of crushed infected bugs spread over the place. All six guinea-pigs died of plague.*

Verbitski's experiments were conducted in 1902-1903 and first published in English in 1908†. His work proves absolutely the transmission of plague in guinea-pigs by bed-bugs

but no one so far seems to have considered these results as having a more than theoretical value, or to have reported transmission of plague during all epidemic by such means. In view of the conclusion of the Plague Commission that plague is transmitted by the rat-flea and by it alone, and the great amount of evidence that has been recorded in proof of this statement, one feels a certain amount of diffidence in offering a contrary opinion. Still, transmission of plague by bed-bugs has been amply proved under elaborate conditions; it is possible in natural surroundings, and if it can be proved to occur in nature it is a factor of some importance in plague prevention. I trust that I have made my position on this point quite clear, I have seen the chain of events involved in rat-flea transmission only too often, it is only the unique and lonely position accorded to the rat-flea to which I object, and I have recorded my experiences above to show that it is possible for another parasite to transmit plague, and to transmit it directly, without infected rats being present.

I am fully aware that these observations are very incomplete, but I hope that other observers who have material available may be able to investigate this question further and settle whether the rat-flea is the only transmitter of bubonic plague, or whether there are not other possible channels of transmission.

I am indebted to Captain J. Good, I.M.S., for valuable assistance and advice.

A Mirror of Hospital Practice

A CASE OF HYPERTROPHIC PULMONARY OSTEO ARTHROPATHY

COMMUNICATED BY H. C. MELVILLE,

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AND

GURANDIITA KAPUR,

ASSISTANT SURGEON,

Clinical Assistant to the Professor of Medicine, Lahore Medical College.

THE following case of a disease which is very rare was admitted into the Mayo Hospital recently. The man had a very small cranium, but the facial development was not abnormal, though his face looked large from in front, owing to the poor development of the frontal part of his skull.

His hands and arms below the elbows, and his feet, ankles, legs and knee-joints, were all markedly hypertrophied. He was suffering from longstanding cough and had a cavity of fairly large size in his right apex. A complete and detailed description of the case is appended,

* *Journal of Tropical Medicine and Hygiene*, May 1903

† *Ibid*

for which I have to thank my Clinical Assistant, Dr. Guranditta Kapur.

M. B., a male, aged about 30, Mohamedan by caste, resident of a village in the Lahore District, was admitted into the medical wards of the Mayo Hospital, Lahore, on 12th November 1909. He was a *faqir* by birth and profession. He was suffering from cough, and complained of pain in the joints, particularly on movement. The duration of the cough was eight months and pain in the joints began a month later.

While a mere child, the patient was left an orphan and did not know when, and of what, his parents died, he had no sister nor brother, so that it is difficult to say whether he inherited any predisposition to this disease or not.

He was unmarried and addicted to tobacco and *charas* smoking to excess. There was no evidence of syphilis, though he confessed having had an attack in his early life.

There was very little known about the course of the disease during the eight months of its duration, except that he had an attack of fever and cough associated with pain in the side of the chest, followed, a few days later, by hæmoptysis which was fairly profuse. The acute attack subsided gradually, but the cough still persisted and assumed a chronic form. Ever since the attack the patient had been gradually losing flesh and growing weaker day by day. A month after the attack of fever he felt pain in both the elbow joints almost simultaneously, and the joints became swollen, tender and somewhat stiff. The condition extended down and involved the wrists and then the joints of the fingers. Similarly, in the lower extremities, starting in the knees, the inflammation appeared in the ankles and then in the small joints of the toes. The shoulder and the hip joints were very little affected, the hips, however, more than the shoulders.

Physical examination on admission—Weight, 115 lbs., height, 5' 6½". Could not stand or walk owing to pain in the joints of the lower limbs.

He was distinctly emaciated, skin dusky, lips somewhat cyanosed, conjunctivæ, rather pale, tongue firm, dry, coated with thick dirty greyish white fur, clean at the tip and edges, marked clubbing of the fingers and to a less extent of the toes. Temperature, 100° F. Pulse, quick, 104 per min., rhythmic (both in force and frequency), of moderate volume and tension, and the vessel wall somewhat thickened.

His chest was broad and flat, ribs prominent, marked hollowing above and below the clavicles, more on the right than on the left, expansion of the lungs defective, especially on the right side. Breathing was quick, about 28 per min., and abdomino-thoracic in type. Slight diminution of vocal-fremitus at the right apex. Percussion—dulness in the supra- and infra-clavicular and upper parts of mammary and axillary areas on the right side. Auscultation—Breath

sounds distinctly bronchial in character over the area of dulness and amphonic in the axilla. Accompaniments—only a few coarse crepitations at the right apex. Vocal resonance increased with bronchophony and whispering pectoriloquy in the first interspace, and the upper part of axilla on the right side. The left lung had nothing particular except that the breath sounds were harsh vesicular in character.

Heart was a little dilated and the heart-sounds rather weak. There was a little accentuation of the pulmonary second sound.

Abdomen was full and resistant, spleen palpable, only on deep inspiration, and the liver was only a finger's breadth below the costal margin in the right nipple line.

Urine contained nothing abnormal.

The smallness of the patient's head associated with enormous enlargement of his hands and feet caused a suspicion to arise of the case being one of acromegaly, but absence of any hypertrophy of the lower jaw and presence of pain in the swollen joints of the extremities were sufficient to set this diagnosis aside.

On taking measurements of the different parts of the body it was noticed that in the head the diminution was particularly in the lateral diameter, and that in the extremities the enlargement was fairly symmetrical on both sides. The forearms and the legs appeared much longer, and the upper arms and the thighs looked comparatively shorter than a person of his height and age would ordinarily possess.

The ends of long bones were enlarged and the joints swollen, stiff, and painful (except the shoulder and the hip joints). There was some effusion in the knee-joints, very little in the others.

The hands and feet were much hypertrophied, and the small joints thickened, especially the metacarpo-phalangeal and inter-phalangeal joints.

The patient stopped in the hospital for about three weeks. The fever he had, on admission came down to normal the next day, and it remained normal all along, except on the 10th day, when it again went up to 100° F., but was again normal the following day.

Cough was rather a troublesome symptom to deal with, it was worse at night and early in the morning. Expectoration was fairly easy. Sputum large in quantity, muco-purulent and occasionally blood stained, and under the microscope it revealed a number of pus cells, leucocytes and epithelial cells. There were also some staphylococci and tubercle-bacilli (mostly single or in groups of two or three). On the 20th day after admission the patient had a slight attack of hæmoptysis.

Remedies to relieve cough were administered, but his condition remained more or less stationary, on the whole, however, he improved, and gained one pound in weight before he left the hospital. The further progress of the case

could not be watched, as the patient advanced all sorts of excuses, on plea of domestic affairs, to leave the hospital, so he was discharged on 2nd December 1909

The point worth noting in this case is that Marie's sign-group, which is diagnostic of hypertrophic pulmonary osteo-arthritis was well-marked, namely—

- 1 A chronic and primary lesion in the lung
- 2 Hypertrophic enlargement of the extremities with swelling, pain and limitation of movement of the various joints of the limbs
- 3 Clubbing of the fingers and toes

EPILEPSY NOCTURNAL,

By A GHOSH, M.B.S.,

M. O., Srimati Sarswati Charitable Dispensary, Murshidabad

THE following case will be very interesting for publication as very few, I believe have had the opportunity of observing a fit in a patient during sleep at night. This is not my only plea for publication, but the main object is the enlightenment of my own knowledge as regards its prognosis and treatment, if anybody amongst our profession, on reading this, condescends to drop a few lines (either in your journal or privately to me) in order to assist me by his practical experience in the treatment of such a case.

The patient is a lad of 15 and of strong and robust health, with no other complaints nor defects whatsoever, except that he is a little dull in intelligence and has not a very retentive memory. By this I mean, his intelligence and memory are a little below the average. He has been subject to this malady probably from his infancy but, however, it was detected only five years ago, and from that time onward he has been under observation and was found now and then to be attacked with convulsive fits always during sleep at night. For the last three years he has been living with me and sleeps in the next room to mine with a door of communication open all night, so that I may be aroused by the noise of the "cay," announcing the fit, which is very loud and high-pitched. The character of the fit is exactly like the description given in the text-book of a typical epileptic fit, *i.e.*, an epileptic 'cay' followed by tonic and clonic convulsion, the first portion (very short) if the 'cay' is expiratory and the rest inspiratory in character. The whole thing only lasts two to three minutes at most, and as soon as the respirations become regular, after several groans and sighs of extreme agony, he falls again into a deep sleep for several hours. When he is awake he says, if asked, he does not remember anything the matter with him at night but only that he feels very sore in all his body and limbs and has a headache. One thing to be noted in connection with the

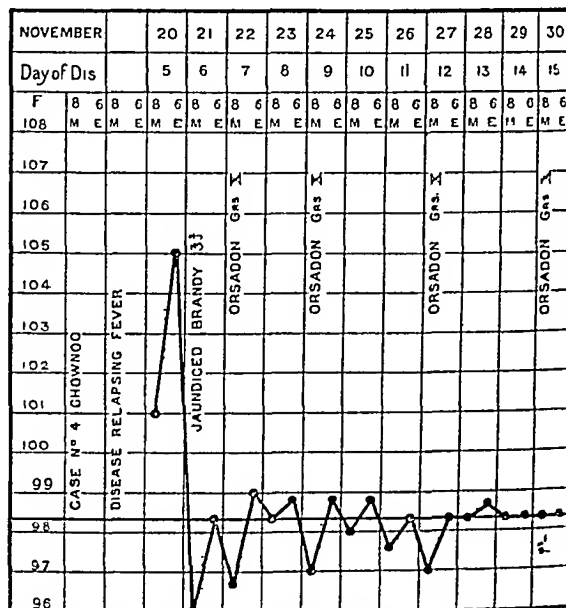
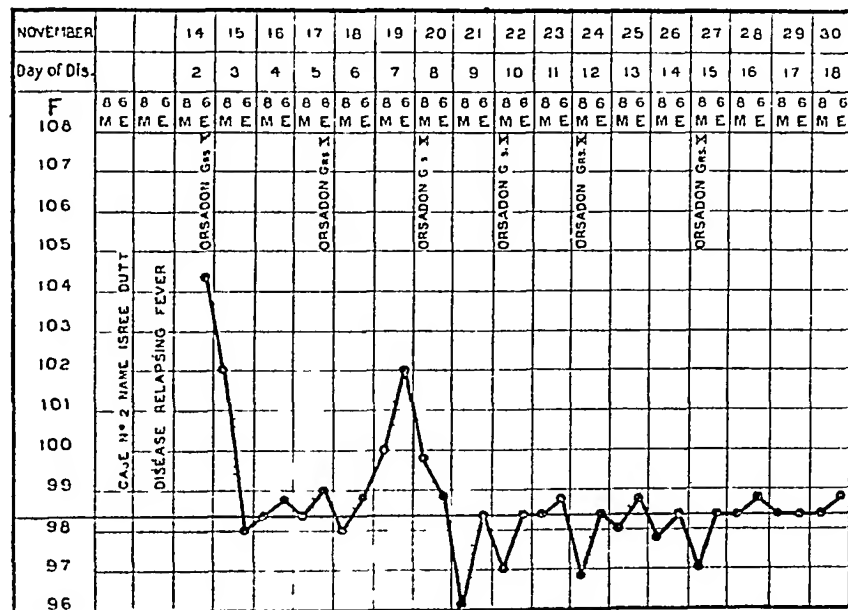
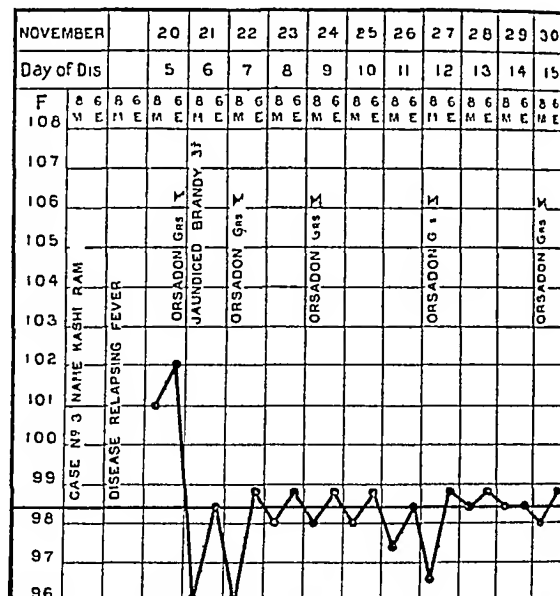
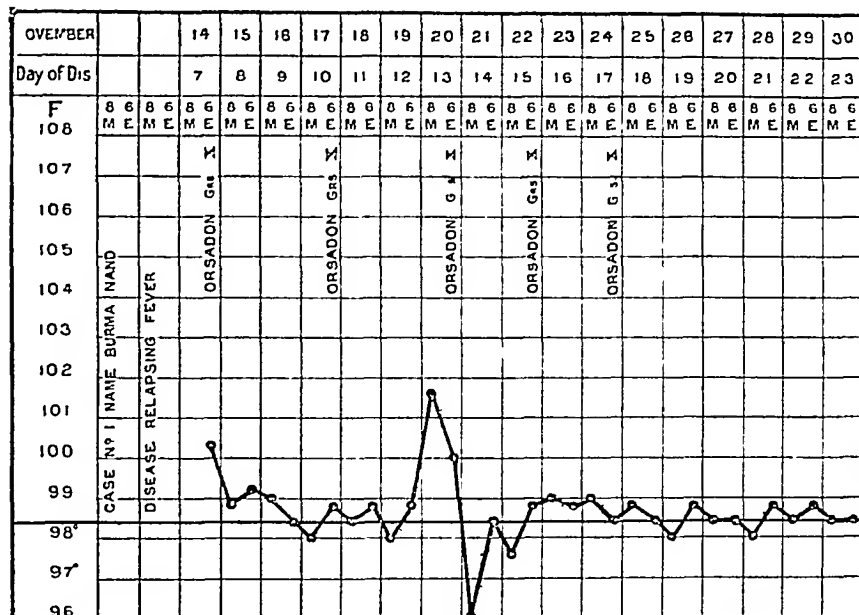
fit is that he is bathed in profuse perspiration when the respirations become regular. He never passes urine or faeces involuntarily. During my observation in the last three years this fit has been found to come on during sleep and at night, once at the interval of about a month. On four or five occasions it was noticed during the day when the boy fell asleep. In the previous and family history there are two things to take notice of. One is that being an inhabitant of a highly malarious village of Burdwan, he suffered much from malaria and his health remained shattered by the repeated attacks, up till he was twelve years of age. But for the last three years with me here he has been keeping excellent health. The other is that his mother was subject to convulsive fits all her life (whether epileptic or hysterical not exactly known) and died of broncho-pneumonia, consequent on food materials going down the trachea during one of her fits immediately after a heavy meal. He has no disease of the ear or nose, no phimosi, no intestinal parasites, no troubles of digestion and nothing of the kind that may be regarded as one of the reflex causes.

In the way of treatment in the last three years I never allow him to go to bed until at least four hours after his last meal, and give occasional courses of bromides (10—15 grains) once in the evening, combined with liq. arsenicis and tinct. belladonnae. In the first two years each course never exceeded three weeks at a stretch, and I gave sometimes pure pot. bromide and at other times, combined pot. sodi, and ammon. bromides, in equal parts in the mixture. I used to begin a course a few days before the fit was anticipated, as the fits used to come on, at the first part of my observation, at almost regular interval of a month. There was no fit during the period of his taking the draught. But as soon as the draught was withdrawn the fit would come on as usual. Being afraid to continue the bromides for a long time, I stopped the evening draught altogether for five months from the beginning of the third year. But now the fits began to come at a much shorter intervals—first of 15—20 days (for two or three months), then once (even twice) a week. I had, of necessity, to revert to the evening draught of tri-bromides with tinct. belladonnae and liq. arsenicis and continued this time for five months without a break. Again it had the desired effect and there were no fits for this long period. But again I stopped the draught and a fit came on just three weeks after its stoppage. There are no skin eruptions nor did the patient feel anything the worse for stopping the draught after a course of five months. Now the question is what course to follow in the way of treatment? How long can the bromides be continued without doing permanent injury to the nervous system? Is there any probability of these nocturnal fits becoming diurnal and when the patient is awake, if it is allowed to

TREATMENT OF RELAPSING FEVER BY INTRAMUSCULAR INJECTIONS OF ORSUDON

By T W TWELLS,

MILITARY ASST SURGN, *Chalrata*



go on without any drugging? These are my queries, and I hope some of your many learned and experienced readers will enlighten me with his kind and experienced advice

TREATMENT OF RELAPSING FEVER BY INTRAMUSCULAR INJECTIONS OF ORSUDON

By I W TWILLIS,
MILITARY ASST SURGN, *Chattrala*

Cases 1 and 2—B N & I D came to hospital on the evening of the 14th November, complaining of pains in the head, back, joint and muscles, severe thirst and the passage of dark reddish coloured urine. The tongue was coated with a slight white fur, and there was pain along the epigastrium. A blood smear was taken and sent to the Central Research Institute, Kasauli, in which the spore of relapsing fever was formed. The cases were put on orsudon, grs \ intramuscularly, and made an uneventful recovery.

Cases 3 and 4—K R & C came to hospital on the morning of the 20th November, suffering from pains in the head, back, joints and muscles, severe thirst, the passage of dark reddish coloured urine, which, on examination, contained a slight amount of albumen. There was very severe pains in the epigastrium and in the right and left hypochondriac regions. The tongue was coated with a dark brown fur.

Case 3 was given an intramuscular injection of orsudon, gr x. This case was a weakly looking lad who was debilitated and anæmic.

Case 4 was put on a saline diaphoretic. He was a well-made man, and it was my intention to have kept him on an expectant form of treatment, but as he became delirious towards the night, I resolved to give him the same treatment as the others. The next morning the temperatures fell by crisis and they were given a stimulant. These two cases were intensely jaundiced. The jaundice passed off in four days' time, but so long as the jaundice remained they complained of pain in the epigastrium and right and left hypochondriac regions. They were given orsudon every other day as shown by the chart, and from the 9th day of disease, the injections were given every 3rd day with the result that they had no relapse. Whereas cases 1 & 2 who first had the injections every 3rd day had a relapse on the 13th and 7th day of illness respectively.

I was led to give orsudon a trial, as in some other cases I had of a similar type, which I thought to be malarial, and in which convalescence was prolonged in spite of dieting and tonics, soamin given intramuscularly, acted like a charm, and cut short the stage of convalescence.

CASE OF FOREIGN BODY (BOTTLE) IN THE RECTUM

By I M CRAWFORD, M.B.,
MAJOR, I.M.S.,
Civil Surgeon, Benares.

ON the 17th December 1909, one R, a *Lohar* by caste stated age 50, was brought to the Prince of Wales' Hospital, Benares, when he related the following history of his case—

Five days previously he had entered his room about 8 P.M., in the dark, and inadvertently squatted on the top of a bottle which was standing on the floor. The neck of the bottle entered his anus, and the rest of the bottle following almost immediately, disappeared inside him. He said he had suffered much pain and had eaten nothing, but one piece worth of *jalahis* daily for the past five days. He had tried several times to pass a motion, but hardly anything had come away. He was able to micturate without much difficulty.

He was brought to the hospital on an *ekka*, but was able to walk up the steps and into the out-patient room.

On examination—The bottle could be distinctly felt lying in a vertical position underneath the outer-edge of the rectus muscle on the left side and reaching from Poupart's ligament to the costal margin. The anus was patulous and admitted two fingers without stretching it at all, there were no abrasions or marks of injury about it, the patient was a very spare old man, looked about 60 years of age, and all the tissues around the anus were extremely lax.

On inserting two fingers as far up the rectum as possible, one was not quite able to reach the bottle. He was then put under chloroform when the glass could be distinctly felt per rectum, four fingers of the right hand were then inserted into the rectum, and downward pressure made from the outside of the abdomen with the other hand, and the bottle, containing a quantity of semi-solid faecal matter, was easily delivered, without causing any injury to the parts—the mucous membrane did not even appear to be abraded.

The bottle in appearance was like a pint champagne bottle, but smaller in size, measuring 8½ inches high and 2½ inches diameter at the base, and when filled to the brim held 7 ounces of fluid.

The patient suffered no ill effects from his adventure—there was no complaint about incontinence of faeces, nor was it noticeable. He left the hospital the following day, but came to show himself again five days later when the anus appeared contracted, though one could easily introduce three fingers without their being gripped at all by the sphincter.

Remarks—The case is an unusual one, and perhaps interesting on that account. Putting aside the fairy tale related by the patient, it is difficult to conceive how the parts could

he rendered so extremely lax as to admit such a large article without causing any damage to them, and that after its extractions a fair amount of control over the sphincter could be so quickly regained by such a feeble old individual

UNUSUAL TYPE OF PLAGUE

By Dr B KRISHNA RAO,

The Health Officer, Bangalore

I SHALL thank you to spare some space in your valuable Journal to bring to the notice of the profession the following particulars of a case that came under my observation, as the same may be of some interest

In the month of February last, a family of seven persons arrived here from Walajapet, in the North Arcot District, whence cases of cholera are often imported here. One of the party was reported to have developed symptoms of cholera and died. Immediately afterwards, an adult woman belonging to the house where the new arrivals had taken up their abode, fell ill with diarrhoea and vomiting. She was removed to the Isolation Hospital in a state of collapse. Saline rectal injections and other symptomatic treatment were adopted, and over four days passed before re-action set in. The smears made from the *alvine* discharges of the patient disclosed under the microscope, the presence of numerous bi-polar staining bacilli not unlike those of plague, and at the same time the result of bacteriological examination of her discharges, sent to the Government Bacteriologist for examination, was the complete absence of cholera spirillum. The re-action was rapidly followed by a continuous rise in temperature as can be seen from the charts enclosed, and swelling of the cervical glands on both sides, and these latter rapidly developed into clear plague buboes.

The peculiar features of this case which deserve notice are (1) its immediate occurrence after a fatal case of *alvine flux* to all appearances an imported case of cholera, (2) its resemblance at its commencement to a case of genuine cholera, (3) but at the same time the presence of bi-polar staining bacilli in the discharges and complete absence of cholera spirilla, (4) and lastly, the development of plague buboes in the neck. I should be obliged if any one can explain this phenomenon in the light of our present knowledge of cholera and plague.

After a stay of 71 days in the hospital, the patient has been discharged cured.

ANOTHER EXAMPLE OF AN UNUSUAL TYPE OF PLAGUE

By Dr B KRISHNA RAO,

Health Officer, Bangalore

SINCE I wrote to you last regarding a curious case of illness that had come under my observation in February last exhibiting signs and

symptoms of Asiatic cholera and bubonic plague simultaneously, one more case of the kind, with the signs and symptoms of plague not quite so apparent to the unaided eye as in the previous, has occurred here recently. Under instructions from the Senior Surgeon and Sanitary Commissioner with the Government of Mysore, I am sending you the following few particulars of the case trusting that you will kindly spare some space for its publication in your valuable journal—

Late in the afternoon of the 29th July last, I received from the Victoria Hospital of this place a note asking for a bed to be kept ready in the Hospital for Infectious Diseases for a patient to be transferred from there suspected to be suffering from cholera or *abdominal plague*—kindly note the expression. Major George Lamb, M.D., F.R.S., member of the Advisory Committee for Plague Investigations in India, told us the other day at the Medical Congress held in Bombay that the theory of the transmission of plague infection through the alimentary canal must be dismissed and that, as far as man is concerned, alimentary infection *does not* take place in plague. At about 6 P.M. arrived the patient, an Eurasian lady, aged about 34 years.

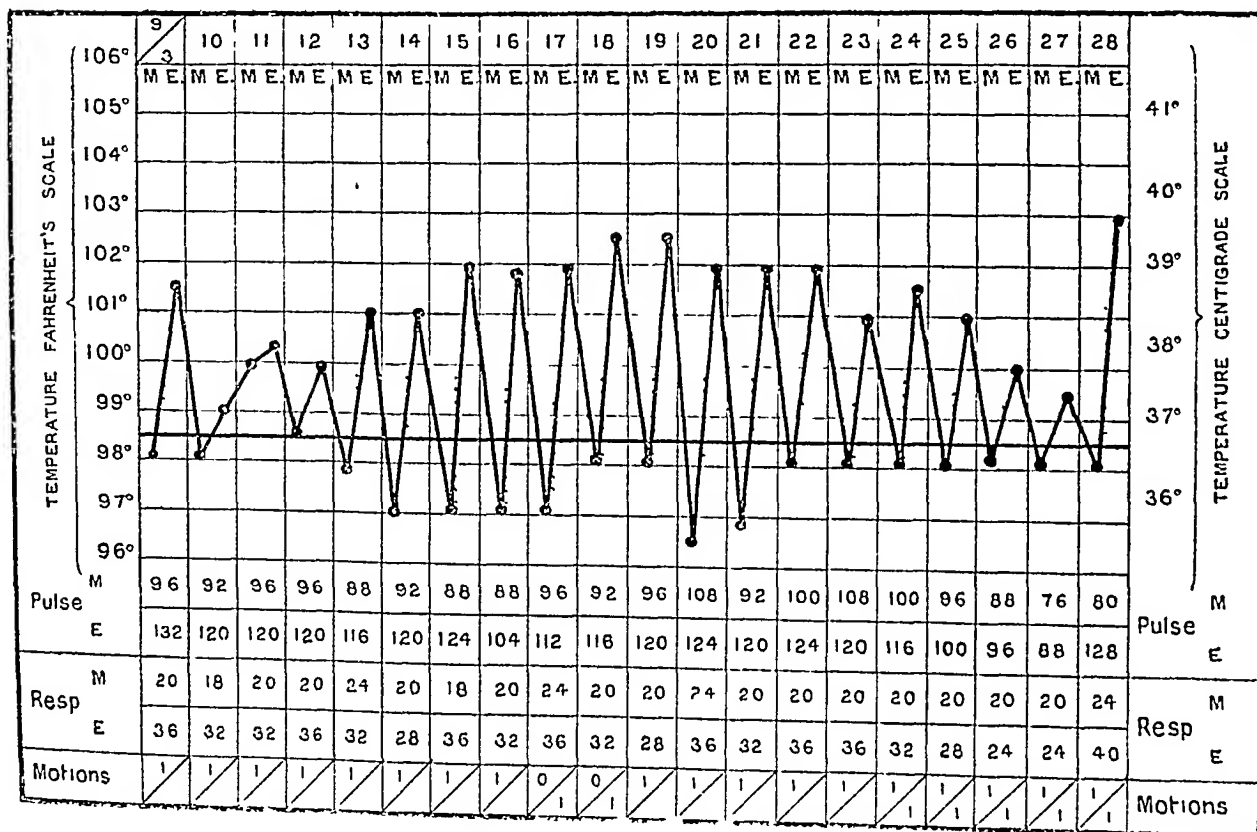
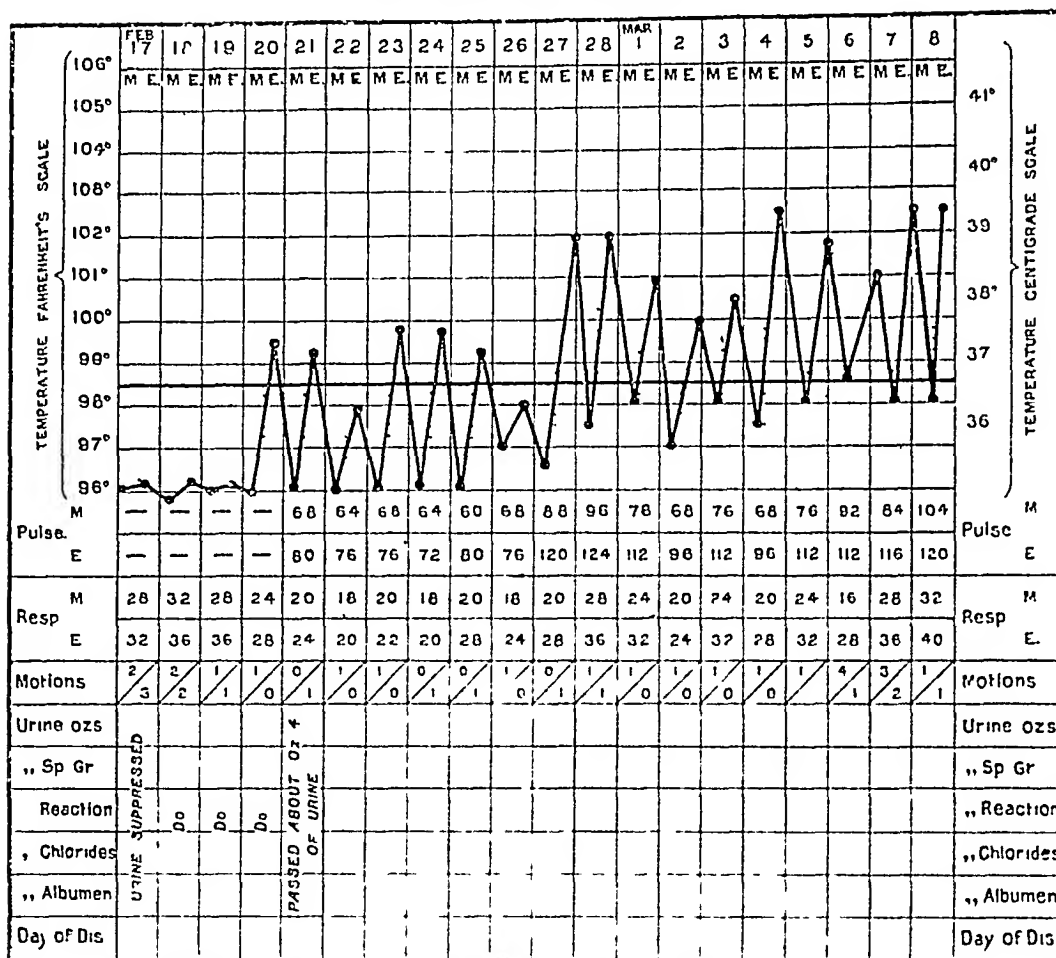
Condition of the patient at the time of the admission into the Hospital—A well-built woman, low in condition though not quite prostrated, conscious and could speak well with normal voice, countenance anxious but not pinched, ocular conjunctivæ deeply congested especially at the ciliary margins, but eyeballs not sunk in the sockets and skin not livid as in cholera, but perspiring freely with a body temperature of 97.6 in the axilla, extremities cold, breathing shallow and hurried with 28 respirations per minute, pulse weak and rapid numbering 120 per minute, tongue dry and brown and urine suppressed.

History—The patient is employed as a nurse in the Victoria Hospital at Bangalore with boarding and lodging in the Nurses' quarters attached thereto. The Victoria Hospital is one of the well-equipped and best-managed institutions of the kind in Southern India. On the night of the 26th July patient seems to have been attacked with acute diarrhoea and had about eight copious watery motions on which account she did not attend to her usual duties in the hospital the next day. On the third morning, however, feeling a little better she resumed her work in the hospital and remained at her post throughout the day. On returning to the quarters that evening she is said to have had a fit of *ague* accompanied again with diarrhoea and vomiting, the two latter continuing till the next day with suppression of urine. The motions are reported to have been offensive and brownish in colour in the beginning and gradually changed to rice-water consistency with no smell. Her condition having become gradually worse

UNUSUAL TYPE OF PLAGUE.

BY DR B KRISHNA RAO,

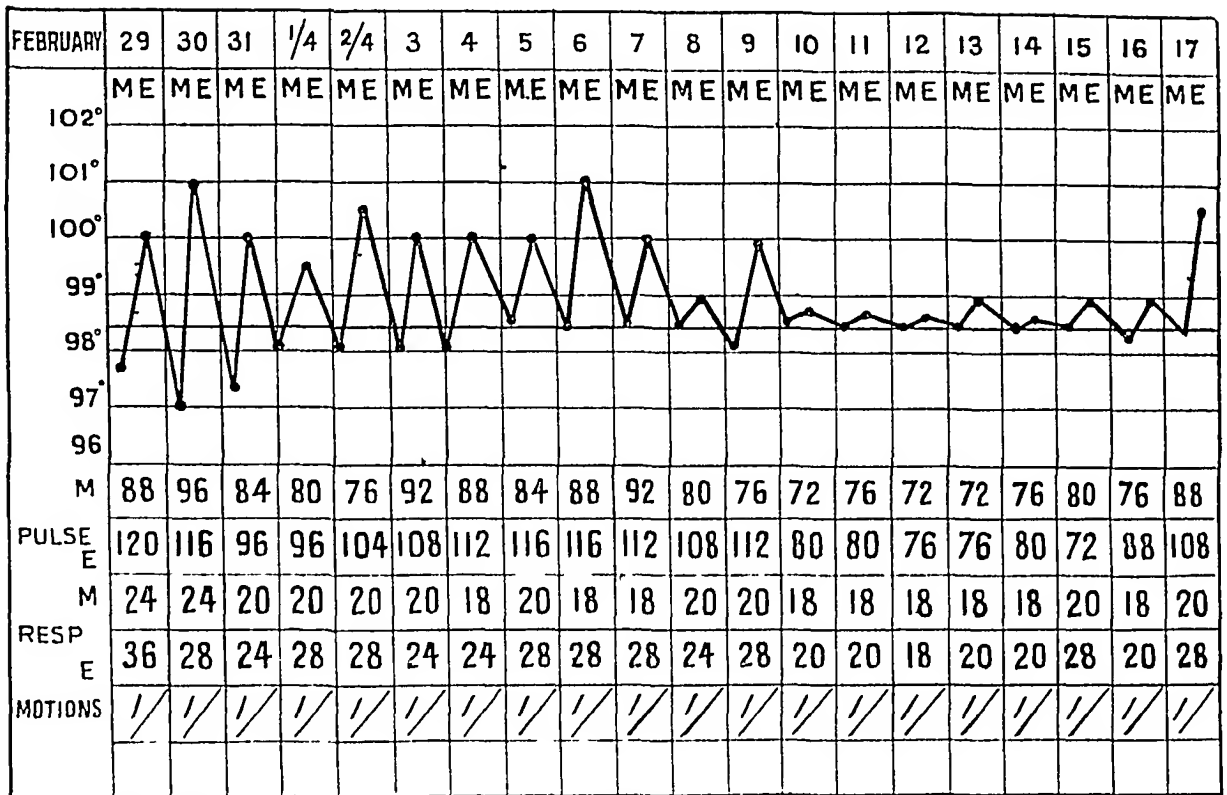
The Health Officer, Bangalore



UNUSUAL TYPE OF PLAGUE

By DR B KRISHNA RAO,

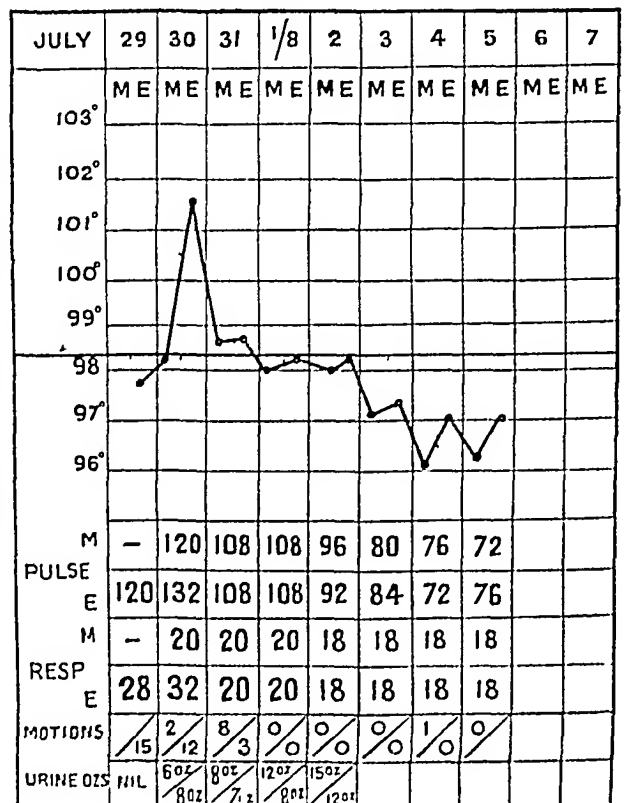
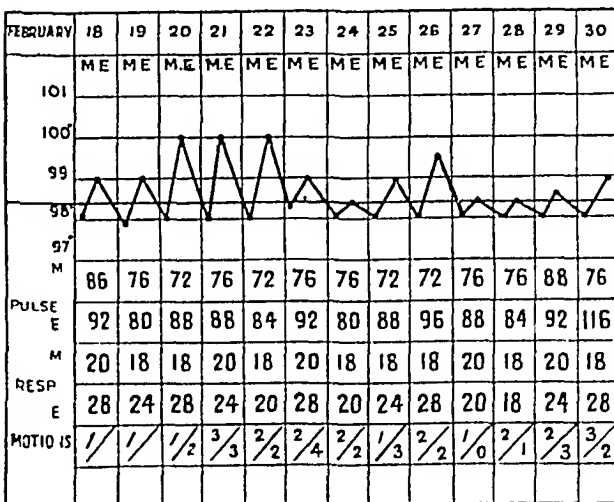
The Health Officer, Bangalore



ANOTHER EXAMPLE OF AN UNUSUAL TYPE OF PLAGUE

By DR B KRISHNA RAO,

Health Officer, Bangalore



MYIASIS IN BURMA

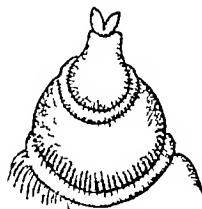
By C R CHETTI,

1st Grade Hospital Assistant, Bassein

[Under the care of Major P DEF, I M S, Civil Surgeon, Bassein]



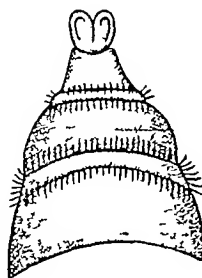
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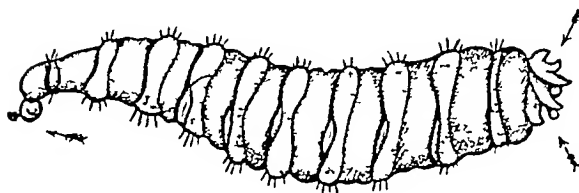
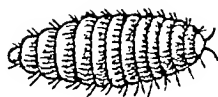
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2



4



she was brought the next day evening to the Isolation Hospital in the state described

Immediately after the arrival of the patient was received, the following report from the Government Bacteriologist on the microscopic examination of the patient's evacuations sent to him

'The stained slides you sent and the slides made here contain a very large number of organisms resembling very much those of *plague*. There were very few comma-shaped bacilli. The result of cultural examination will be made known to you as early as possible'

Course of the illness—After admission into the hospital the patient continued to be bad till 4 o'clock next morning, being throughout the night restless, rice-water evacuations and suppression of urine continuing. She then passed 6 ounces of urine and had two brown coloured loose motions, after that for a time her condition appeared hopeful, pulse and breathing improving, temperature, however, rose to $101\frac{1}{2}$ and at 8 A.M. again vomiting returned and symptoms of acute gastric irritation set in with incessant vomiting which failed to yield to any remedy that could be thought of, nourishment by the stomach was therefore found impossible. Frequent rectal saline injections and, whenever necessary, hypodermic injections of strychnine and adrenalin were only used. Towards mid night, however, a gradual change for the better appeared in the condition of the patient and in the morning when she woke up from a few hours' sleep she was found free from all trouble.

Since then she made a steady progress towards recovery, and was discharged cured on the 6th August.

The following is the result of the cultural examination made by the Bacteriologist of the organisms noticed by him in the evacuations as resembling those of *plague*. "In continuation of my D.O., dated the 2nd instant, I have the honor to report that suspicious looking bacilli (*plague*) isolated from the dejecta of Mrs. ——— were confirmed by animal experiment and further cultural and staining character to be those of *Plague*." The patient's intellect and speech were throughout clear in this case and the pulse perceptible at the wrist. The patient's clinical chart is herewith enclosed

MYIASIS IN BURMA

By C. R. CHEITI,

1st Grade Hospital Assistant, Bassein

[Under the care of Major P. Dee, I.M.S., Civil Surgeon, Bassein]

AFTER reading the article on "An Indian Screw Worm" by R. Lloyd Patteson, L.R.C.P. & S. (Edin.), in the *Indian Medical Gazette* of October 1909, I thought it worth while to send the following to your Journal for publication. There were three cases treated in this hospital, all of them Myiasis Narium, one proved

fatal and two recovered, and the notes of the following will be of interest.—

1. Hizath Ally, *æt* 36, a Mahomedan male, a cultivator, an old resident of Bassein, Burma, was admitted into hospital on the 22nd of January 1907, complaining of swollen forehead, severe frontal headache, bleeding from both the nostrils followed by an offensive discharge from the nose, and fever of seven days' duration.

Past History—No history of syphilis, does not drink, nor take opium, had no gonorrhoea. Never had this sort of disease before.



Present condition—The patient is a well-built subject, but very weak and unable to walk. Forehead swollen, as far as the bridge of the nose. There is bleeding from the nostrils, with a pultaceous, thick shreddy and highly offensive discharge. Appearance of the patient is very anxious. Heart sounds normal. Chest well formed. Lungs normal. Spleen and liver normal. Tongue dirty and coated. Bowels loose. Mouth offensive. Appetite poor.

Urinary system—Sp. gravity 1015. Reaction acid. No albumen or sugar. Blood examined microscopically, no malarial parasites found. His nostrils were douched with potassium permanganate lotion five times daily. Astringent mixture given to check the diarrhoea, and morphia to soothe the pain of the frontal region.

On the evening of the 25th he complained of creeping sensation from the forehead to the nostrils—on douching six screw worms came through the right nostrils.

On 26th morning, a swelling below the right eye was noticed. His nostrils were douched with

acid-carbolic lotion 1 in 40, and six more screw worms made their way through the right nostril.

On the night of the 27th the cheek was more swollen, headache better. Slept fairly well that night. No bleeding, discharge present but not offensive.

From 28th to 2nd February Headache slight. Slept fairly well. Swelling of the face subsiding.

3rd and 4th February 1909. Feels better. Slept well. There is slight bleeding from both nostrils.

5th. There is no bleeding from the nostrils, but complains of slight pain in the head.

From 6th to 12th February. Bleeding and discharge stopped. No headache at all. He was discharged cured on the 12th February 1909. It is a pity a photo was not taken on admission but one was taken when he was getting better and the swelling on the face was subsiding. A rough drawing of worm is enclosed and the photo as well.

TRANSPOSITION OF THE VISCERA

BY K. W. MACKENZIE

CAPT., I.M.S.

SARWAR, a bright-looking but anæmic boy of 14 years from Mana, Baluchistan, came to hospital at Liaiat in July, complaining of a tumour of the abdomen. This had been present according to his statement for three years and had gradually increased in size. There had been fever before its commencement but none since.

The boy was very anæmic but well-nourished, and presented a very protuberant abdomen. On examination a hard mass was found filling up the whole of the right side of his abdomen, which presented a very definite edge towards the middle line, and in it a well-marked notch was felt. This suggested the probability of the tumour being spleen and also that the case was one of transposition of the viscera. On further examination this was found to be the case.

Spleen—The upper border reached the 6th space in the anterior axillary line, and extended as far forward as the 6th rib in the nipple line. The lower border extended to the brim of the pelvis. The anterior border passed from the 6th rib in the right nipple line towards the umbilicus but, when one inch above it, traversed the middle line for about 3 inches and then turned downwards to join the lower border at the brim of the pelvis.

The posterior border corresponded roughly with the posterior axillary line.

The extreme length was 14 inches, and the breadth at the lower end was 11 inches.

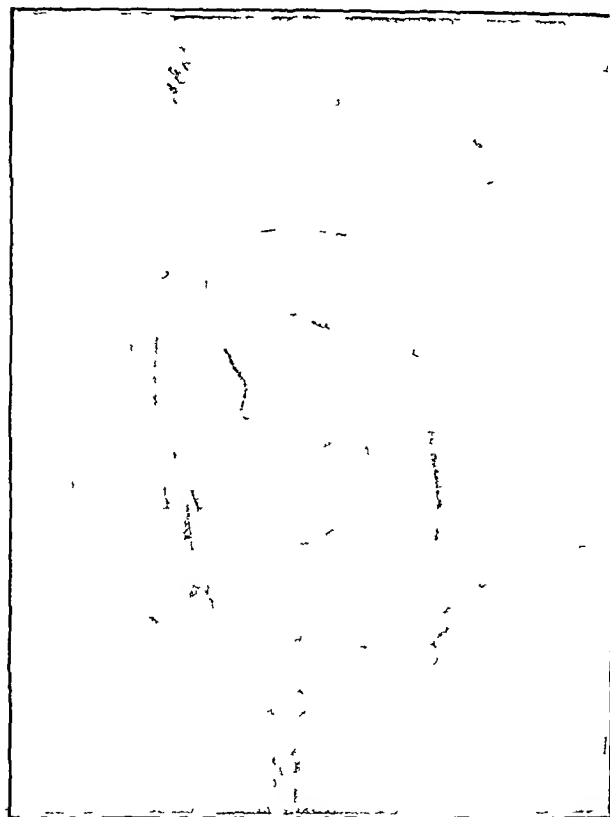
The spleen was hard.

Heart—The heart was found on the right side, the apex beat being felt in the 5th interspace just interval to the nipple line.

The heart sounds were healthy.

Liver—The liver was found transposed and appeared enlarged even allowing for the tilting upwards of the costal margin.

Stomach—By auscultation percussion a small portion of the lower border could be made out.



between the liver and spleen in the right nipple line, the whole organ being to the right of the middle line.

Blood—

A differential count gave—

	Per cent
Polymorphonuclears	40
Large Mononuclears	34
Lymphocytes	24
Eosinophiles	2

There was no leucocytosis or evidence of leucocythæmia—the blood condition being due apparently to malaria alone.

The direction of the colon was not determined.

The boy was right-handed.

MARY KINGSLEY MEDAL

MAJOR L. ROGERS, M.D., F.R.C.P., I.M.S., has been awarded the Mary Kingsley Medal by the Liverpool School of Tropical Medicine for distinguished researches in Tropical Diseases.

Among the thirteen former recipients are the names of Lord Lister, Sir P. Manson, Sir D. Bruce, Professors Koch and Laveran.

Indian Medical Gazette.

MARCH

THE MEDICAL SERVICES IN 1909

FOR the Medical Services, the year 1909 has not been marked by any striking events. The British Empire has been at peace. The year has been one of quiet, as far as the R A M C and I M S are concerned, without occurrences of special note.

In the issue of the *Indian Medical Gazette* for August 1909 was republished the correspondence between the Secretary of State for India and the Government of India, on the proposed reduction in numbers of the I M S, and the employment of private practitioners instead of servants of Government. These proposals were also discussed in a leader in the same number of the *Gazette*. As yet, however, the changes proposed are still to come. And, while this paper would be incomplete without some reference to them, they belong to the future, not to the past.

The number of deaths during the year has been small, four in the R A M C, including one, Captain F H Hardy, from sleeping sickness, one each in Bengal and Madras, none in Bombay, and two in the junior I M S. The best known officers on the retired list of the R A M C, who died during the year, were Surgeon-General T Tarrant, and Surgeon-Major T E Hale, v.c. The Bengal Service lost four mutiny veterans, C K Webb, W W Ireland, A G Duff and C E W Bensley, also Colonel G M Davis, who had seen much service on the frontier, and the famous Botanist, Sir George King. Three of the oldest retired members of the Bombay Service joined the majority, Surgeon-Majors F S Stedman, W Niven and E R Butler. Madras lost only a retired officer, very much junior to all those mentioned above.

During the year there was a fair flow of promotion in the R A M C, two Surgeon-Generals and five Colonels having retired, giving seven steps down the line, only about half the number of promotions in 1908. There were two promotions to Colonel in Bengal during the year, two in Bombay, none in Madras.

In the Bengal Service there will be a rapid run of promotion in 1910, six administrative officers retiring during the year, beginning with

the Director-General on 1st January. These vacancies should carry promotion a considerable way down the list, but there will be comparatively few steps during the following five years. This, however, will not create any great block, as the number of men who entered the I M S in the four years, 1881 to 1885, was small, and of that small number few remain in the service now. How small the number was is shewn in the following table —

ENTRIES TO I M S IN FOUR YEARS (FIGHT TERMS)
1ST OCT 1881—1ST APRIL 1885

	Total	Retired	Dead	Still Serving	Total
Bengal	29	13	5	11	29
Madras	13	3	3	7	13
Bombay	8	1	1	6	8
Total	50	17	9	24	50

Of the eleven Bengal officers still serving, one has been gazetted to retire in February, and it is probable that several others, in all three services, will retire during the next two years. Of the thirteen Bengal officers retired, two, Major L T Young and Lieutenant Colonel W L Price, have died since retirement.

In Madras there will be one retirement, in 1910, in the rank of Colonel, in Bombay none.

In last year's article the rapid run of promotion in the Bombay Service was discussed. The junior Colonel reached that rank in January 1909, while several men in the Bengal and Madras Services, who entered before him, had not even got the length of the "selected list." And the junior officer on the selected list in Bombay, who attained that position on 12th August 1909, went over the heads of 28 officers of the Bengal Service, and eight in Madras, some of whom were recently his seniors by five years. Such is luck! Before many years have passed promotion to the selected list in Bombay will come to an end, by exhaustion of the men eligible for promotion.

The Director-General of the I M S, Sir Gerald Bomford, was made a K C I E on 1st January 1909, went on leave in May, and retired from 1st January 1910, his retirement falling in the present, not in the past year.

The Indian Army List of January 1910 shows 768 officers on the active list of the I M S, besides two Captains on temporary half pay. Of these, 189 belong to the Bengal Service, 77 to Madras, and 48 to Bombay (total 314 seniors), while the junior service, with

454 men, is now about fifty per cent stronger than the three older branches together

Twenty officers are shewn as seconded, 11 in various scientific appointments, one as Health Officer, Madras, two in Africa, one each in Hyderabad and Persia, three juniors as residents in hospitals at home, and one apparently by mistake

The retired lists of the I M S show 111 names (Bengal 62, Madras 28, Bombay 21) of men who entered prior to the Service being closed in 1860, half a century ago. Two of these veterans served in both the Sutlej and Punjab campaigns, one of them in the Mutiny also, two in the Crimea, two others in the Crimea and the Mutiny, and at least 32 more in the Mutiny

The oldest officer on the retired list is still Surgeon-Major H B Hinton, who entered on 14th January 1839, seventy one years ago, and, after serving in the Sutlej and Punjab wars (but apparently not in the Mutiny), retired on 7th March 1868. He is the only man remaining whose entry dates back to the thirties, but there are still ten veterans who entered the I M S in the forties

THE MEDICAL SERVICES IN 1909

I — BENGAL

A — Deaths

No	Rank	Name	Date	REMARKS
1	Major	W H Orr, C I E	26th Jan	Heart failure, Bahraich

B — Retirements

No	Rank	Name	Date	REMARKS
1	Colonel	D Wilkie	2nd April	
2	Do	H K McKay, C B, C I E	2nd Dec	
3	Lt Col	T H Sweeney	1st Mar	(Selected list, extra pension)
4	Do	F F Perry, C I E	14th June	Do
5	Do	S Little	22nd June	Do
6	Do	A Silcock	25th Mar	Do
7	Do	J Sykes	14th Dec	(Selected list)
8	Do	J C C Smith	7th Aug	
9	Do	T R Mulroney	13th Aug	
10	Do	A I Bown	14th Dec	
11	Do	E H Brown	10th Nov	
12	Do	A G Hendley	26th June	

C — Promotion

No	Old Rank	Name	New Rank	Date	REMARKS
1	Lt Col	H N Campbell, C I E	Colonel	2nd Apr	Wilkie, R
2	Do	T Grainger	Do	2nd Dec	McKay, R

II — Honours

No	Rank	Name	Honour	Date	REMARKS
1	Surgn Genl	L D Spencer	K C B	25th June	(Retired list)
2	Do	G Bomford	K C I E	1st Jan	
3	Colonel	H N Campbell	C I E	25th June	
4	Lt Col	J W T Leslie	C I E	1st Jan	
5	Major	W H Orr	C I E	1st Jan	(Died 28th Jan)

E — Deaths of Retired Officers

No	Rank	Name	Date	REMARKS
1	Colonel	G McB Davis, (B)	4th Oct	Wimbledon
2	B S Lt Col	Sir G Karg, K C I E	13th Feb	San Remo
3	Lt Col	J F Tuohy	22nd Feb	Brighton
4	Surgn Maj	C K Webb	7th April	
5	Do	P F Bellew	16th May	
6	Do	C E W Bensley	5th Dec	North Kensington
7	Asst Surg	W W Ireland	17th May	Musculburgh
8	Do	A G Duff	12th Dec	Palmerston, New Zealand

II — MADRAS

A — Deaths

No	Rank	Name	Date	REMARKS
1	Lt Col	F J Crawford	5th Nov	S S Hereford shire, near Suez pneumonia

B — Retirements

No	Rank	Name	Date	REMARKS
1	Lt Col	D P Warhker	1st April	(Selected list)
2	Do	H G L Wortabet	22nd June	Do
3	Do	J L Poynder	12th Dec	Do
4	Major	C H L Palk	1st May	
5	Do	H St J Fraser	18th June	(1 H P 9th Oct 1908)

C — Promotions

Nil

D — Honours

No	Rank	Name	Honour	Date	REMARKS
1	Surgn Genl	P H Benson	G S Pension	1st Oct 1908	Greany, R
2	Lt Col	W B Brunor	D Sc, Ed	2nd Apr	
3	Do	F J Dewes	K I H, 2nd class	1st Jan	

L — Deaths of Retired Officers

No	Rank	Name	Date	REMARKS
1	Lt Col	D Backhouse	3rd Apr	Rathmines, Dublin

III — BOMBAY

1 — Death

Nil

III — BOMBAY — (contd.)

B — Retirements

No	Rank	Name	Date	REMARKS
1	Colonel	J McCloghry	19th Jan	(Selected list, extra pension)
2	Do	H B Briggs	1st Jan	
3	Lt Col	R I Baker	12th Aug	
4	Do	T D C Barry	18th Nov	

C — Promotions

No	Old Rank	Name	New Rank	Date	REMARKS
1	Lt Col	H W Steven	Surg Genl	11th Jan	Greany, R
2	Do	W A Corkey	Colonel	1st Jan	Briggs, R
3	Do	R W S Lyons	Do	13th Jan	McCloghry, R

D — Honours

A —

I — Deaths of Retired Officers

No	Rank	Name	Date	REMARKS
1	Lt Col	G A Macconnachie	25th June	Aburdeen
2	Do	J W Clarkson	2nd Sept	Lausanne
3	Surg Maj	F S Stedman	16th Mar	Eastbourne
4	Do	E R Butler	Aug	
5	Do	W Niven	7th Feb	Woodlands, Ore Sussex

IV — I M S

A — Deaths

No	Rank	Name	Date	REMARKS
1	Captain	C H S Lincoln	5th Jan	St George's Hospital, Bombay
2	Do	G A Soltau	17th Mar	Killed at polo, Benares

B — Retirements

No	Rank	Name	Date	REMARKS
1	Captain	R F C Talbot	24th July	On T. H. P.
2	Lieut	A B Zorib	26th Sept	
3	Do	A T Densham	30th Oct	

C — Honours

No	Rank	Name	Honour	Date	REMARKS
1	Captain	I J O'Meara	K I H, 1st Class	1st Jan	
2	Do	R W Knox	K I H, 2nd Class	1st Jan	

V — R A M C

A — Deaths

No	Rank	Name	Date	REMARKS
1	Lt Col	J J O'Donnell	7th Jan	Kerkee Cholera, Damluk
2	Major	J C Weir	20th Dec	
3	Captain	F H Hardy	8th Mar	Sleeping sickness, Aden
4	Do	C D M Holbrooke	6th May	Abscess of liver, Poona

B — Retirements

No	Rank	Name	Date	REMARKS
1	Surg Genl	W Donovan, C B	17th Nov	T. H. P., 14th Aug 1907
2	Do	W S Pratt, C B	21st Jan	
3	Colonel	A W P Inman	6th Jan	
4	Do	I I Routh	20th Mar	
5	Do	W J R Rainsford, C I P	20th Jan	Guards (Selected list)
6	Do	O Todd	1st July	
7	Do	J G Harwood	15th Sept	
8	Bt Col	C E Harrison	19th Oct	
9	Lt Col	R D Hodson	14th Dec	Do
10	Do	F A B Daly	14th Apr	Do
11	Do	A S Rose	26th May	T. H. P., 19th April 1907
12	Do	G E Weston	17th July	
13	Do	J Carmichael	5th May	
14	Do	R P Hetherington	1st Sept	
15	Do	H J Wyatt	3rd Mar	On T. H. P.
16	Do	S F Freyer	4th Aug	
17	Major	R J A Durant	2nd Feb	
18	Do	C W Duggan	28th July	
19	Captain	G S Nickerson	23rd Jan	
20	Do	I M Bust	4th June	

C — Promotions

No	Old Rank	Name	New Rank	Date	REMARKS
1	Colonel	H R Whitehead	Surg Genl	21st Jan	Pratt, R
2	Do	O E P Lloyd, C	Do	17th Nov	Donovan, P
3	Lt Col	S C B Robinson	Colonel	21st Jan	Whitehead, prom
4	Do	R W Ford, D S O	Do	26th Jan	Rainsford, R
5	Do	T P Woodhouse	Do	28th Jan	Brevet
6	Do	H J R Moberley	Do	1st July	Todd, R
7	Do	E Butt	Do	15th Sept	Harwood, R
8	Do	R H Firth	Do	10th Nov	Brevet
9	Brevet Col	T P Woodhouse	Do	17th Nov	Lloyd, prom

D — Honours

No	Rank	Name	Honour	Date	REMARKS
1	Surg Genl	A H Keogh, C B	L L D, 1st	2nd Apr	T. H. P., 14th Aug 1907
2	Do	W L Gubbins, C B	K H S	19th Oct	
3	Do	G D Bourke, C B	K H P	3rd Feb	
4	Do	H R Whitehead	C B	25th June	
5	Colonel	D Wardrop	C V O	25th June	(Guards)
6	Brevet Col	C E Harrison	C V O	25th June	
7	Lt Col	W B Lushman	Knight	25th June	(For Merit)
8	Major	G S Crawford	Commander Crown of Italy		
9	Capt	H S Anderson	Chevalier, do		
10	Do	H C Winclworth	Do		Do
11	Do	P A Lloyd Jones	Do		Do

I —Deaths of Retired Officers

No	Rank	Name	Date	REMARKS
1	Surgn - Genl	T Tarrant, c b	3rd Feb	Charleston, Cork
2	D S G	R Hungerford	19th Mar	Chiswick
3	Colonel	I W J Hodder	25th June	St Heliers, Jersey
4	Surgn Lt Col	C E M Shaw	5th Jan	London
5	Surgn Lt Col	A Doug	11th Aug	Woking
6	Lt Col	S N Cardozo	30th Dec 1908	
7	Do	A C Ceoghegan	2nd Apl	Ilford
8	Do	J M Duncin	20th Aug	Rossall Beach, Fleetwood
9	Do	A Long	9th Sept	Upper Tooting, London
10	Do	F J Fairland	6th Aug	Bournemouth
11	Do	H J McLaughlin	23rd Nov	Cullander
12	Surgn Maj	T J Tucler	27th Jan	Hindon Wilts
13	Do	T Barnwell	4th Jan	Hairgate
14	Do	W C Black	— Mar	Edinburgh
15	Do	J Wilson	15th May	Culdford
16	Do	H A Martin	7th May	Surliton
17	Do	T A Thornhill	4th Aug	
18	Do	W P Ward	29th Sept	Hove Brighton
19	Do	L C Hooper	25th Aug	St Heliers, Jersey
20	Do	J F Scott	7th May	Dublin
21	Do	T F Hale, v c, c b	25th Dec	Nantwich
22	Major	J S Edye	22nd Feb	Panchpir, Morbhany, Orissa choleia
23	Surgeon Captain	R Lindsay	— Oct	Botley, Hants
24		H M Ramsay	29 April	Tubercle, Painswick

DOCTORS IN PARLIAMENT

(U UNIONIST—L LIBERAL—N-NATIONALIST)

TWELVE men holding medical qualifications were elected to the Parliament of 1900-06, three Unionists, Sir Robert Finlay, Sir John Batty Tuke and Dr Rutherford Harris, four Liberals, Sir Walter Foster, Dr Fairquhaison, Dr Price and Dr Hutchinson, four Nationalists, Mr J Dillon and Drs Ambrose, Macdonnell and Thompson, while the twelfth, Sir Michael Foster, the famous Physiologist, was originally returned for London University as a Unionist, but changed sides

Drs Fairquhaison, Macdonnell and Thompson did not seek re-election in 1906, Sir Robert Finlay, Sir Michael Foster and Dr Hutchinson lost their seats, the other six were re-elected

Twelve members elected to the House of Commons in 1906, held medical qualifications, while a thirteenth, Dr C O'Neill, was returned for South Armagh as a Nationalist at a bye-election in 1909. Though all qualified medical men, several of them had never, or not for a long time past, practised their profession, and so could hardly be counted as members of the medical profession. Their names were as follows

- (I) Dr R Ambrose (N) West Mayo
- (II) Sir W Collins (L), St Pancras, West
- (III) Dr G Cooper (L), Southwark, Bermondsey
- (IV) Mr J Dillon (N), East Mayo
- (V) Sir W Foster (L), Derbyshire, Ilkeston
- (VI) Dr F R Harris (U), Camberwell, Dulwich
- (VII) Dr C O'Neill (N), South Armagh
- (VIII) Sir G H Pollard (L), Lancashire, St Eccles
- (IX) Sir R J Price (L), East Norfolk
- (X) Dr R Rainy (L), Kilmarnock Burghs
- (XI) Sir G S Robertson (L), Central Bradford
- (XII) Dr V H Rutherford (L), Middlesæx, Brentford
- (XIII) Sir John Batty Tuke (U), Edinburgh & St Andrew's Univ

Dr Harris resigned his seat in 1906, Dr Cooper died in 1909, Sir John Batty Tuke did not come forward at the recent election, neither did Dr Ambrose. The other nine medical members faced the electors, and all, except Dr Rutherford, with success. Thirteen other medical men stood, only three of them with success. The medical candidates for the present parliament appear, then, to have been the following

Successful

(I) Dr C Addison (L), Hoxton, won the seat, which was one of the very few captured by Liberals in the metropolis

(II) Sir William J Collins (L), West St Pancras, well known as a prominent member of the progressive party in the London County Council, won the seat in 1906, and held it in 1910 by the narrow majority of ten votes in a poll of over 7,000

(III) Sir Balthazar Walter Foster (L), Ilkeston Division of Derbyshire, M P for Chester, 1885, defeated in 1886, got in at a bye election for his present constituency in 1887, and has retained the seat ever since, was Secretary to the Local Government Board, 1892-95

(IV) Dr A Hillier (U), Hertfordshire North or Hitchin Division, won the seat

(V) Sir G H Pollard (L), Eccles Division of S E Lancashire, won the seat in 1906, and held it in 1910

(VI) Sir R J Price (L), East Norfolk, elected in 1892, and has retained the seat ever since

(VII) Sir George Scott Robertson, Central Bradford (L), I M S, 1878-1899, K C S I for Chitral, 17th July 1895, stood without success for Stirling County in 1900, won the seat at Bradford, which he has now retained in 1906

(VIII) Dr W A Chapple (L), Stirling County

(IX) Sir Robert Finlay (U), Edinburgh and St Andrews Universities, sat for the Inverness Burghs from 1885 to 1892, and from 1895 to 1906, was formerly Attorney-General from 1900 to 1906

(X) Dr A Rolland Rainy (L), Kilmarnock Burghs, elected in 1906, and retained his seat now

(XI) Mr John Dillon (N), East Mayo, M P for Tipperary 1880-83, has sat for East Mayo since 1885

(XII) Dr C O'Neill (N) (South Armagh), unsuccessfully contested the seat as a Nationalist in 1900, against

another of the same party, returned at a by election in 1909, and again now

Unsuccessful

(I) *Dr G Coates* (U), Staffordshire, Lichfield Division

(II) *Dr T Eastham* (U), Cheshire, Hyde Division

(III) *Surgn General G J H Evatt* (L), Brighton, unsuccessfully contested Woolwich in 1886, and the South or Fareham Division of Hampshire in 1906 Retired from R A M C about five years ago

(IV) *Dr H S Lunn* (L) Boston

(V) *Dr J E Molson* (U), Bethnal Green, North East

(VI) *Dr R O Moon* (L), Marylebone, East

(VII) *Dr Permerwan* (L), South West Lancashire, Bootle Division.

(VIII) *Dr V H Rutherford* (L), Middlesex, Brentford Division, stood unsuccessfully for the Osgoldcross Division of Yorkshire, West Riding in 1900, won Brentford in 1906, now defeated by 3,856 votes in 1910

(IX) *Sir Alexander Simpson* (L), Edinburgh and St Andrews Universities, nephew of Sir James Simpson, and his successor in the chair of Midwifery at Edinburgh, which he resigned a few years ago

(X) *Dr S R Keightley* (L), South Londonderry, unsuccessfully contested South Antrim, as an Independent Conservative, in 1903, and South Londonderry as a Liberal in 1906 He is the author of several readable novels

(XI) *Dr J Court* (U), Derbyshire, North East Division, the fourth time he has contested the constituency

Many of the above, it must be said, are medical men in name only, having qualified, but long since abandoned the profession Sir Robert Finlay, Sir George Pollard and Sir Richard Price, have long given up medicine for the higher branch of the Law, Dr H S Lunn runs a travel agency, Mr Dillon has always been a politician, pure and simple, Surgeon-General Evatt and Sir George Robertson are retired officers of the R A M C and I M S, respectively, Sir Alexander Simpson has also retired from professional work

The telegrams, announcing the results of the elections, give the prefix of "Doctor" to three other candidates, all Liberals, and all unsuccessful, Dr Sasse in West Bristol, Dr Court in Wakefield, and Dr Aske in Central Hull Whether these gentlemen are Doctors of Medicine we do not know

Dr Freemantle, who intended to contest Rotherhithe as a Unionist, Dr Ambrose, who was Nationalist member for West Mayo, and Dr T Laffan, who was candidate in the same interest for Mid Tipperary, did not stand, but withdrew at the last moment

In a *Gazette* which is *Indian* as well as *Medical*, we may devote a short space to Anglo-Indian members of, and candidates for Parliament To the Parliament of 1906, apparently ten Anglo-Indians were elected, all but one Liberal The solitary Unionist was Sir L MacIver

Mr C J O'Donnell, ICS, Newington, Walworth

Mr T Hart Davies, ICS, North Hackney

Sir H Cotton, ICS, Nottingham, East

Mr H Cox, Educational, Preston

Colonel I Phillips, Army, Southampton

Sir G S Robertson, ICS, Central Bradford

Mr J D Rees, ICS, Montgomery, Burghs

Sir L MacIver, ICS, Edinburgh, West

Sir J Jardine, ICS, Roxburgh County

Sir D Smeaton, ICS, Stirling County

Of the above, Sir L MacIver resigned his seat last year, Sir D Smeaton and Mr C J O'Donnell did not stand at the present election, Sir H Cotton, Mr T Hart Davies and Mr H Cox, lost their seats, the other four have been again returned to Parliament

Five other Anglo-Indians stood, all without success Mr H E Cotton (Barrister) (L), Camberwell, Dulwich, Sir J West Ridgway, Army (L), London University, Colonel C Yate, Army (U), Leicester, Melton Division, Sir F Lely, ICS (L), Kent, Sevenoaks Division, Sir H M Durand, ICS (U), Plymouth.

Current Topics

ANTI-MALARIAL MEASURES

Lt-Col E C Hare, ICS, Sanitary Commissioner, Eastern Bengal and Assam, reports —

Anti-malarial schemes are being undertaken in the towns of Jalpaiguri and Dinajpur

(1) At *Jalpaiguri*, a scheme was drawn up by Captain Ritchie, the Civil Surgeon, partly with the object of improving the health of the European quarter, and partly to demonstrate anti-malarial methods The experiment was to be confined to the *Nayabasti* (a localized area isolated from the bazar in which the majority of the servants belonging to the inhabitants of the Civil Station live) to the police lines, and to the native residents in the European quarter The population was estimated to be about 1,000 people, one-third of whom were children under 10 years of age Dr Bentley has shown that the "endemic index" among these children was 45 per cent

The experiment comprised —

A *Quinine disinfection* — By the free issue of quinine from July to December It was to

be given in the form of sugar-coated tablets to adults and of tannate of quinine in chocolate to children

B Protection against mosquitoes—By screening doors and windows with wire gauze

C Destruction of larval mosquitoes—(1) By cleaning and levelling drains, jungle cutting, and filling up pits (2) By spraying mosquito breeding-grounds with kerosene oil

The cost of the year's operations was estimated to be Rs 4,000

Shortly after the experiment commenced, it received an unexpected check by Captain Ritchie's transfer, and it was not until the following December—after an interval of the four most important months—that his place was refilled and the work taken up again

However, 94,000 grains of quinine have been distributed. The circuit-house and the Civil Surgeon's bungalow have been screened. Drains have been cleaned, and a number of pits and hollows have been filled in

The experiment is still in its infancy, and it is too early to expect definite results, but a spleen census taken at the end of March, shows that the "splenic index" among children under 10 years of age was 29 per cent and among adults 6 per cent

There is no record, however, to show the time of the year at which Dr Bentley's census was taken. The percentage of spleens found at the end of the rainy season would certainly be higher than the percentage taken in March

(2) The *Dinajpur* scheme is on the same lines as the *Jalpaiguri* scheme, but on a larger scale. A special Assistant Surgeon and Hospital Assistant have been detailed for the work. Special gangs of coolies have been entertained to remove rubbish and clean up the compounds of houses, to level off hollows and keep tanks clear of weeds, and to spray to the edges with kerosene

The Hospital Assistant is to act as a "Quinine Missionary". It will be his business to preach the use of the drug and to distribute it

Operations were begun in January 1909 under the superintendence of the Civil Surgeon, who is assisted by an influential local committee

THE GOVERNMENT OF EASTERN BENGAL AND ASSAM ON THE PROPHYLACTIC USE OF QUININE

THE statistics now available, showing for two years the working of the system of distribution of Government quinine at less than cost price, though insufficient to enable final conclusions to be drawn as to its success, are very interesting. Sales increased from 1,937,286 powders in 1907 to 3,428,051 in 1908

There is perhaps no subject of greater practical importance to the Sanitary Department than the education of the people to a knowledge of the value of quinine as a prophylactic, and Sir Lancelot Hare desires that in the next

annual report the measures taken in each district should be described in some detail. It is desirable that efforts should be systematised, and it is for the Sanitary Commissioner to encourage District Officers and local bodies to introduce those measures which have been found successful elsewhere

The Lieutenant-Governor has already stated that he will cheerfully accept the increased burden upon Provincial Revenues which extended distribution will involve, and although he realises that there is much force in the contention that haphazard distribution is not the most scientific or likely to be the most successful method of combating malaria, he considers that for the present it is of first importance to encourage the use of quinine. Organised treatment of the whole population of an infected area will probably be found to be the most effective method of dealing with the disease, and the Lieutenant-Governor hopes that action on these lines may be found possible. But this involves a trained distributing agency working under constant supervision, and as a system of distribution through retailers who profit by the sales works automatically, it seems desirable that it should continue, and that every effort should be made to render it more effective, even though in selected localities quinine disinfection on more advanced lines is attempted

NOTES ON POISONING CASES

Potassium Cyanide poisoning by hypodermic injection—A case of suicide by hypodermic injection of potassium cyanide was sent for investigation by the Coroner of Calcutta. The deceased, a medical student, who, it appears had recently lost his wife, was found dead one morning in his bed, with the mark of the puncture of a hypodermic needle in the region of his heart. A metal antitoxin syringe, a hypodermic needle, and a measure-glass containing a small quantity of white powder were found close by. A letter addressed to his elder brother in the handwriting of the deceased, disclosed that he had committed suicide by injecting some poison (name not mentioned). The viscera, a portion of the tissues and blood from the site of the puncture, and a quantity of urine, were forwarded, separately, for examination. Cyanide of potassium was detected in the tissues and blood, and hydrocyanic acid was detected in the urine. No poison was detected in the viscera (stomach, liver, kidneys and lungs). Cyanide of potassium was also detected in the measure-glass and syringe which were sent. An empty phial of cyanide of potassium was found in his room. The points of interest in the case are—The rapid elimination of the poison in the urine, and that this is probably the first case of suicide by hypodermic injection of cyanide of potassium recorded

Cyanide of potassium poisoning (suicidal)—Death delayed for 2 hours—Another case of suicide by cyanide of potassium was sent by the Coroner of Calcutta in which the man lived for full two hours after taking a large quantity of cyanide of potassium. The history given was as follows—N, a Hindu male, and electro-plater by profession, was suffering from bubo. At 4-30 P.M., on 30th July, 1908, he called out for his wife, who came and found him lying on the floor with a bottle containing white powder labelled "Cyanide of potassium," and a cup containing some liquid near him. Emetics were given, but he died at 6-30 P.M. the same day. At the post-mortem examination the blood was found fluid and of a bright scarlet hue. No odour from the body or stomach was noticed. There was some congestion or hyperæmia of the brain and liver. The viscera of the deceased, the glass bottle containing white powder, and the cup containing a few drops of watery liquid, was forwarded for analysis. Hydrocyanic acid, which is produced from the decomposition of cyanide of potassium, was detected in the viscera, and cyanide of potassium was detected in the glass bottle and in the liquid in the cup.

Atropine poisoning (accidental)—An interesting case of accidental poisoning by atropine, caused by a compounder of a druggist's shop in the city inadvertently substituting atropine for urotropine, was sent by the Commissioner of Police, Calcutta. In October last, D, a Eurasian male, went to a dispensary for advice and was prescribed 16 doses of a diuretic mixture containing among other things three grains of urotropine and 20 minims of tinct. hyoscyamus in each dose. After taking one dose of the mixture the patient became unconscious, and was admitted into the Medical College Hospital, where he was found to be suffering from symptoms of Belladonna poisoning. His stomach was washed out, and after treatment he recovered. The stomach washings and the remaining doses of the mixture were forwarded to this department for analysis. One-twentieth grain of atropine was detected in the washings of the stomach and two-fifths of a grain of atropine was detected in each dose of the mixture. No urotropine was found in the mixture. The compounder, who was not a passed one, admitted to having dispensed atropine in the place of urotropine.

Aconite poisoning—A case of poisoning by aconite was sent by the Coroner of Calcutta. In December, 1907, H, shortly after taking his meal, began to vomit and purge, and died within a short time. Nothing abnormal was noticed at the post-mortem examination. The viscera as well as the clothes of the deceased, stained with vomited and faecal matter, and some earth from the place where the deceased had vomited, were forwarded for analysis. Aconite was detected in the stains of vomited and faecal matter on the clothes and in the earth, but no poison was detected in the viscera. Some cook-

ed meat, pudding, and some medicine found in the house of the deceased, were also forwarded for analysis but aconite was not detected in any of them.

This is one of the instances, among many undoubted cases of aconite poisoning, in which the poison could not be detected in the viscera owing to its rapid elimination, but was found in the vomited matter and stools—(Report of the Chemical Examiner, Bengal)

THE BILIARY CIRRHOSIS OF INFANTS, OTHERWISE KNOWN AS INFANTILE LIVER

For many years a peculiar disease of the liver of infants, accompanied with fever and attended with a high mortality, has been recognised in India (Bengal).

The morbid anatomy and pathology of this disease were well described by Lt-Col Gibbons, I.M.S. (retired) in 1891, who considered it a form of biliary cirrhosis and suggested that the term intercellular cirrhosis would be appropriate, as there occurred a primary development of fibrous connective tissue within the lobules between the liver cells. The other organs of the body seem unaffected, except the kidney, which shows marked degeneration and shedding of the epithelium of the tubules. The usual post-mortem appearances were œdema of feet and legs and generally of face and hands, and a small quantity of fluid in the abdomen. All the tissues of the body are bile-stained. In the earlier stages the liver is enlarged, but later it becomes small. There is no perihepatitis, but the liver substance is tough and the outer-surface granular. The liver cells are much altered, many being destroyed and others converted into masses of granular debris. In the interlobular bands of connective tissue many bile ducts are found. The intercellular fibres are not applied closely to the degenerated cells but form a network, in the spaces of which the degenerated cells lie. It was suggested that the disease is due to an irritant which primarily attacks the liver cells, but which also leads to proliferation of the connective tissue elements. The proliferation of the bile ducts is not so easily explained, but it was suggested by Paltang to be a curative process, in which a regeneration is brought about by a multiplication of bile ducts from which masses of liver cells were formed. The disease is not due to alcohol, there is no evidence of syphilis, and the pathological changes are quite different from the liver enlargement which follows malaria.

Symptoms—The disease is almost entirely limited to children between six months and two years of age. The onset is insidious. Some families seem liable to the disease. It occurs amongst rich and poor, but is probably less common amongst Mahomedans than Hindus. It is as common amongst infants fed with other milk than that of their mothers.

The disease varies in its duration, sometimes lasting a month only, at others for perhaps two years. Generally the first symptom noticed is enlargement of the liver, but early symptoms are nausea, vomiting, sallow complexion and slight fever. The child loses its appetite, becomes irritable, develops thirst and becomes distinctly feverish, especially towards night. The liver enlargement progresses and may become very extensive. Some tenderness over the liver is detected. In the later stages jaundice sets in and the child is markedly ill. Oedema occurs also in the later stages. There is a deficient excretion of bile, the stools being clayey and whitish, but the urine is deeply stained. The fever seems to increase with the disease.

The prognosis is extremely unfavourable, but it is impossible to estimate the case mortality, as there are no trustworthy figures available. The disease is said to be common in Madras, and it has been seen in Bombay. The clinical course of the disease was well described by Dr. Jogendra Nath Ghosh in the "Transactions" of the first Indian Medical Congress (1894).

Since 1904 careful enquiries (in the absence of medical certificates) have been instituted in Calcutta into the causes of all deaths, and the prevalence of this disease has been clearly shown. The symptoms and course of the disease shown by later enquiries confirm the early descriptions. I am not aware, however, that anything further has been done to explain its pathology or to discover its origin.

We had in Calcutta in 1907 no less than 636 deaths of children from this disease. Of this number 92 only were under 12 months of age, 138 only were over two years of age. The great bulk of the cases, viz., 64 per cent died at ages between one and two years. The mortality amongst Hindu children is greater than amongst Mahomedans, but male and female children are about equally attacked. It is important in connection with the theory that this disease is brought about by absorption of toxic material from the bowels to note that diarrhoeal diseases (more particularly acute and chronic enteritis and the complaint corresponding to summer diarrhoea) are less common in Calcutta than in England, the mortality from diarrhoeal disease being 21 per 1,000 births in Calcutta, as against 31 per 1,000 births in England and Wales (1904). Considering that the disease occurs in sucklings, in infants artificially fed, and in children between one and two years of age, who are given all sorts of food, it is difficult to ascribe the disease to errors of diet. It is generally considered to be a progressive disease, and one started almost always fatal. Taking all things into consideration, we can most reasonably conclude that it is a parasitic disease, but whether microbial in origin or due to larger forms, there is no evidence to show —

INFANTILE LIVER FOR 1907

Age	HINDUS		MAHOMEDANS		TOTAL
	Male	Female	Male	Female	
Under 3 months	2				2
" 6 "	14	7	2	2	25
" 9 "	12	10	3	4	29
" 12 "	15	7	6	8	36
" 15 "	52	44	19	12	127
" 18 "	34	12	1	4	51
" 21 "	83	71	11	9	174
" 24 "	29	30	7	5	74
Over 24 "	5	45	20	18	138
Total	276	226	69	65	636

Our returns for 1908 show 727 deaths from this disease, distributed as follows — Hindus 596, Mahomedans 124, mixed races 2, other classes 5. It is therefore much more common amongst Hindus, even taking into consideration their larger population. From the large mortality annually occurring from this disease the statistics are of more than purely medical interest — (*Health Officer's Report, Calcutta*)

THE PUERPERAL DIARRHŒA OF BENGAL, OTHER WISE KNOWN AS "SUTIKA"

IN my report on plague in Calcutta for 1904-05, I referred to a form of chronic diarrhoea with fever occurring in puerperal women, which caused a considerable number of deaths. Subsequent investigations have shown that the mortality from this disease is larger than was at first reported. For the year 1906-07 we have records in Calcutta of 228 deaths from "sutika," 196 from puerperal fever, and 80 from child-birth.

We have a large number of deaths amongst women after child-birth, amounting to over 13 per cent on the total number of registered births due to a disease characterised by the following symptoms — Diarrhoea generally commencing within two or three weeks after delivery, but sometimes later, without blood or mucus in the stools, and unaccompanied by any pain in the majority of cases. The stools vary from 5 to 15 a day and are sometimes described as watery in character, at other times as frothy and fermenting. In some cases dyspeptic symptoms are noticed and in nearly all there is loss of appetite. There is no vomiting or cough and there are no symptoms pointing to pelvic mischief. Along with this diarrhoea is an irregular fever, but details concerning it are wanting, except that it commences the illness and seems to last throughout it. Debility and emaciation seem to occur early and exhaustion seems to be the final cause of death. A late symptom is oedema of the feet, which seems to occur in a large proportion of cases. The

negative symptoms are important. There is no vaginal discharge or other sign of pelvic disease, there is no griping or tenderness of the abdomen (except in a few cases), and no vomiting. The previous state of health is reported as having been good in the majority of instances. The course varies. Sometimes it seems rapid, the symptoms are more intense, and the patient dies within a few months. In other cases the illness lasts on for over 12 months. The average is from five to eight months. What the case mortality is, I have no means of knowing. The disease seems to occur in women of all ages and equally amongst Hindus and Mahomedans. The following table shows this —

Deaths from "Sutika" 1906-07

Age	Hindus	Mahomedans	Total
Under 15	2	1	3
15 to 19	27	12	39
20 to 24	35	16	51
25 to 29	39	21	60
30 to 34	32	11	43
35 to 39	14	5	19
40 and over	8	5	13
Total	157	71	228

In the Calcutta population Hindus are in proportion to Mahomedans at 2 to 1. Compare these figures with those for

Deaths from Puerperal Fever — Calcutta 1906-07

Age	Hindus	Mahomedans	Total
Under 15	8	2	10
" 15 to 19	27	15	42
" 20 to 24	34	19	53
" 25 to 29	23	21	44
" 30 to 34	22	10	30
" 35 to 39	4	3	7
40 and over	4	4	8
Total	122	74	196

This gives a death-rate of 1.2 per cent in addition to the rate from "sutika." The deaths connected with child-birth due to other causes amounted to 90, so that apart from this ill-understood disease "sutika," child-birth in this city is accompanied with a death-rate of 1.7 per cent. The disease is recognized by some of the Native practitioners, but its cause is unknown. I have not heard of any case amongst Europeans. Practitioners in other parts of Bengal inform me that it occurs in several other towns. The diagnosis seems fairly clear, but the pathology is a mystery. It is certainly not ordinary puerperal fever, it is equally certain that it is not dysentery, and there is no indication that it is due to tubercle. As Health Officer I have no opportunity of studying these cases clinically nor with regard to treatment, and I therefore publish this note solely as a small epidemiological study.

For 1908 there were 165 deaths returned as due to this disease, distributed thus: Hindus 105, Mahomedans 60. This is approximately in correspondence with their respective populations. —(Health Officer's Report, Calcutta)

ANTITETANIC SERUM

IN the *International Clinics*, Vol. III, series 19, L. Lagane considers the present position of antitetanic serum therapy. The results of observations upon animals are absolutely precise. The antitetanic serum has no effect on a case of tetanus in evolution, except perhaps when used in intracerebral injection, and confirmed tetanus in animals is always fatal, but, on the other hand, its preventive power is absolute, if it is injected before, or at any rate shortly after the production of a tetanus infected wound. In man, on the contrary, observations are remarkably varied, their interpretation contradictory, and many cases warrant the following two unexpected conclusions: (1) A possible curative action of the serum, and (2) an uncertain preventive action. In certain cases the serum, given in large doses, appears to have had a curative action in man, whereas this does not seem to be the case in animals. This serum has merely the action of a counter poison or antidote and even that in an entirely temporary manner. It has no effect on the tetanus bacilli localized at the point of inoculation, it does not impede their development and it does not hinder the germination of the spores. Its rôle, which is a very limited one, is to render inoffensive the toxin circulating in the blood by combining with it. It has not even any effect on the toxin fixed in the nerve cells, as the latter have an elective affinity for the tetanus toxin and do not allow themselves to be impregnated by the antitoxin which would be for them a liberating agent. Finally this antitoxic action of the serum is entirely temporary, as its effect does not last more than a week. After that time if the tetanus wound still exists, and if there are local complications which facilitate the development of the bacilli, the toxin secreted no longer finding any antitoxin to neutralize it, will produce its customary results, when, however, the antitoxin is renewed in proper time, its preserving power is prolonged for a fresh period. The dry serum recommended by Calmette is not as active as the liquid serum and should be used for wounds that are superficial, easy to disinfect, and not likely to contain the tetanic germ. The true preventive treatment of tetanus is the removal of infectious germs by every possible means, asepsis, antiseptics and even surgical intervention. —(The Cleveland Medical Journal)

PHYSIOLOGICAL ASPECTS OF GASTRO-ENTEROSTOMY

DR W. B. CANNON, Professor of Physiology, Harvard Medical School, publishes a paper of

more than ordinary interest on the physiological aspects of gastro enterostomy

He discusses these aspects under two headings, *viz*, under what conditions does the new opening induce an alteration in the normal course of the food? If the normal course of the food is changed, what are the results of that change? Cannon shows from physiological observations that there is no alteration of peristalsis because of a new opening being made midway in the stomach. The notion that has been expressed by some surgeons that such an opening gives the part of the stomach beyond it rest from activity is quite erroneous. If the pylorus is not obstructed, this continued peristalsis results in forcing food through the normal exit at the pylorus. The physiologist has difficulty in seeing any advantage gained by this operation under these circumstances unless the passage of bile and pancreatic juice into the stomach through the new opening reduces hyperacidity, experienced surgeons now counsel against the operation unless pyloric obstruction is present.

If obstruction is present, food leaves the stomach through the artificial opening, and, though the acid chyme causes a flow of pancreatic juice and bile, it may not receive a proper admixture of these juices. As a consequence a large amount of the fat and the protein of the food may pass out unabsorbed. Chemical examination of the feces in patients operated on bears out this contention and explains those cases that show emaciation and marasmus following gastro-enterostomy—(*Boston Med and Surgn Journal*)

THE INDIAN CIVIL VETERINARY DEPARTMENT

WE are very pleased to notice that the Government of India has sanctioned the publication of a Memoir series in which the investigation work of the Civil Veterinary Department can be dealt with, apart from the annual administration report.

Memor No 1 is the first of these publications and contains a statement of the research work of the Imperial Bacteriological Laboratory, Muktesar, for the official year 1908-09 under the editorship of Captain J D E Holmes, M A, DSC, IVD.

We wish the new publication a very successful career and, at the same time, offer our heartiest congratulations to the editor on his first number. If anything approaching the high level of this production is maintained, there is not much doubt of the place the Memoirs will occupy in the future of veterinary literature. A special feature is the beauty of the illustrations and plates with which the text is liberally endowed. Neither trouble nor expense has been allowed to stand in the way and the result is an ideal publication.

THE LEGISLATIVE COUNCILS

WE are glad to see the name of Surgeon-General C P Lukis, Director-General of the I M S, among those appointed to the newly constituted Imperial Legislative Council. Some of the heads of the Provincial Medical Departments also appear in the lists of the new Provincial Councils, Colonel R N Campbell in that of Eastern Bengal and Assam, and Colonel G F A Harris and Lt-Col C MacTaggart in that of the United Provinces, Surgeon-General H W Stevenson and Major J Jackson in the Bombay Legislative Council.

Under the former system, appointments of Medical Officers to either Imperial or Provincial Council were few and far between. Sir Alfred Lethbridge was appointed an Additional Member of the Legislative Council of India in 1893, Surgeon-General W R Cornish, a Member of the Madras Council in 1883, and Colonel R D Murray, a Member of the Council of the United Provinces, four years ago.

SPECIAL ARTICLE

COUCHERS AND THEIR METHODS

By R EKAMABRAM,
MEDICAL PRACTITIONER,
Coimbatore

WHILST stopping at Somanur in the Coimbatore District, I learnt from the people that the Mahomedan Vydians pay frequent visits to this and neighbouring villages in quest of cases, and that their first appearance was usually in a garden close by the village in which there is good shade and a well. I accordingly instructed the villagers to bring me the quickest possible information about the advent of any of these Vydians.

About two months ago one morning, news was brought to me that a batch of four Vydians had camped in the usual shady spot. I at once repaired to this locality, saw them, held a pretty long conversation with them, but reserved a few further questionings to the evening in the belief that they would stay in the village. However, learning from the villagers who it was that was talking to them for such length of time, they unnecessarily took flight and bolted, and I was somewhat disappointed. Two weeks later a second batch came but as mysteriously disappeared, and a long adventurous walk I took in search of information about their whereabouts proved vain and I returned home quite discomfited. I therefore thought more caution was necessary to get these men at close quarters, and accordingly instructed the villagers not to talk anything to them about me, but that I would introduce myself to them in the course of conversation in a way which could not raise any misgiving in their minds and as after-events

showed, this plan of campaign proved successful

About five days later another group consisting of five men appeared on the very same spot I received intelligence of their arrival and immediately I started. I was confronted with one of the batch, a Mahomedan, aged over 50, with long beard and moustaches, wearing a dirty garb and a big turban and carrying a satchel of cloth suspended from his shoulders. With him also came a beggar woman, native of a near village, aged about 70, with a cataract in her right eye who had implored friends to assist her in getting treated by the Mahomedan. The fee arranged for, I understood, to be Rs 3 in cash and 1 in kind, to meet the cost of supplies to the group. The Vyidian presently laid his satchel on a pial and took his seat there. The patient was made to sit in front of the Vyidian, the Vyidian facing her as the barber faces the man whom he shaves. In this connection I must admit that these Vyidians are ambidextrous, using the right hand for the left eye and the left for the right. Their hands are not at all shaky though some of them are over 60 years, everyone of them being a total abstainer from drinking and smoking. They, however, chew tobacco to any extent. The Vyidian then took from his satchel a betel-leaf box of Malabar make which on his opening it proved to be his box of surgical instruments as well, for he had promiscuously put into this box not only his betel-leaf, areca-nut, chunam and tobacco which formed his chewing material, but as well a hook, a—what I afterwards recognised to be—lancet, a copper probe and a penknife which formed his surgical equipments and some old tamarind and dirty cotton—the tamarind being used for cleaning the copper probe and the cotton for dressing the eye. The Vyidian presently indented for a stone (on which sandalwood is rubbed and sandal paste is prepared, a common furniture in every Hindoo household) and a chombu (brass-vessel) of cold water. He next took out a small dug and rubbed it on the stone pouring some water till there was some tiny quantity of the paste. Then he took from his box a lancet-like instrument. This instrument, made of steel of Malabar make, is two inches long and is practically something like a vaccinating lancet without a handle. Dirty cotton had been wrapped up the whole length of it, it was hidden in the cotton wool except for 2 mm of the point. Its real nature was concealed and, to an ordinary unobservant eye, it appeared but a roll of cotton. Preliminary to handling this instrument, he asked the patient to look well towards the nose and marked out gently on the sclerotic coat with the nail of his thumb a spot for the play of his instruments, no local anæsthetic having been used before. The location of this spot for his operation was done in an empirical way, but the dangerous zone was carefully avoided, the spot being about 8 mm outwards from the cornea, and about 2 mm below the horizontal meridian

of the globe. He then took the lancet wrapped in cotton and, taking some paste he had prepared on the tip of it, told the patient that he was going to apply medicine only. He warned and exhorted her to look well towards her nose and then plunged the lancet and made a puncture in the spot already marked out on the sclerotic. The patient started with sudden pain and the Vyidian told her that "the medicine application" was over. Then he took from his box a probe of copper. This instrument is cylindrical in shape and tapers towards one end. It is 4 inches long, the diameter being about 1.5 mm at the broad end. Towards one end at 12 mm from the tip, it begins to be three-sided and also tapers, but not to a point, it is blunt. A dirty cotton thread had been twisted round it at the point where it assumes the three-sided shape, to mark as it were the stop as in Bowman's stop needle. He inserted this probe into the puncture to about the mark and then holding it by the thumb and the two fingers, gave a circular motion to it, the puncture acting as a pivot or fulcrum. This motion was intended to tear the suspensory ligament right round and then with a gentle downward stroke, the lens was depressed. He then took out the probe. The instantaneous effect worked as magic on the wondering multitude who gathered round and the Vyidian lost no opportunity of glorifying himself. The other sound eye of the patient was carefully closed, and the patient was asked to look with the eye operated upon and tell straight on the things which the Vyidian showed her. He first touched her beard which the old woman at once named and the colour of it also, and one after another the woman gave out the names as the Mahomedan Vyidian pointed out to her—his fingers, nose, ear, turban and the colour of his dress, and finally to crown all, he separated a thread from his garment and held it suspended before her. She at once identified it and its colour too. The spectacle was, indeed, very marvellous to the surrounding multitude and the patient was overjoyed at the moment. Then the Vyidian asked for a piece of white cloth which was supplied to him. He drenched it in the water in the chombu and squeezed the water into the eye. Then he made some paste out of some mutant powder, and smeared it on the skin all round the eye (i.e.) over the brow, the temple, the cheek-bone. Then he applied his dirty dressing and the work of the day was finished. I requested him to sterilise his hands and instruments before operation, but to no purpose. I must admit that it was my fortune he did not, for he would have attributed the ultimate failure of this case to the adoption of my suggestion.

This group of Vyidians was bold enough to stay in the village for two days, and the Vyidian dressed the patient the next day, by which time no marked unpleasant symptoms had set in, probably the free use of counter-irritation helped in

postponing the catastrophe. She identified everything as on the operation day, but I could see some muddiness of the pupil which was also contracted, however, I was not allowed to put in any medicine. It was my good luck again. I must thank the Mahomedan for it. The group left the village on the evening of the second day (*i e*) the day after the operation. On the morning of the third day the patient came to me and complained of severe incessant pain and frequent shocks and glares in the eye and in the head, that she had no sleep but ached all the previous night and that she could not rest her head in any convenient posture. The patient now became as much dejected as she was overjoyed before, nay, in her agony bewailed herself and cursed the day she entrusted her eye into the hands of the Mahomedan. She threw herself on my care and implored me to relieve her pain and make her as before, *i e*, never minding the vision. On examination, I found her suffering from septic nido-cyclitis of very severe type and I treated it on the usual lines. Treatment for one week allayed the pain in the patient, but it was impossible to give her back her lost sight.

I have had plenty of opportunity of coming across these batches of Vydians and of learning direct from them individually and collectively their mode of life and the methods of their operations. Their accounts all tally with one another. I witnessed also some half a dozen more operations at different hands in different places.

The home of the eye-operators who roam over this portion of the Presidency is Kannadiputhur, a village situated on the banks of the Amravati river, in the Udumalpet taluk of the Coimbatore District. They number about 30 families—all Mahomedans. They are also agriculturists. They own small plots of wet land and when the young paddy plants are transplanted, they have practically nothing more to do till the harvest season. They tour abroad in the interim as Vydians, visiting village after village. They have seen all Southern India in their tours. The couching of the lens is their chief art and their fathers have practised it from time immemorial. They are not only couchers but general surgeons as well, operating on buboes, carbuncles, piles, fistulæ, boils, abscesses, etc, etc, with a penknife they showed me (indeed a wonder), but I did not care to know anything of their general surgery. They generally come out in groups of 4 or 5. They get as fee anything from a fowl to Rs 50 for a case. The total earnings are shared equally by them. A cook boy generally accompanies them in their tours, but he gets only a half share. This cook is to become a coucher later on as time rolls on. They arrive in a village in which they take up their head-quarters. In the morning at about 5 A.M., they disperse in different directions to the near villages, leaving the cook to look after their bags and baggage at the head-quarters and reassemble in the first village at the usual

shady spot between 12 noon and 3 P.M. quite exhausted. Their life is very miserable and I really pity them. They often return empty-handed, but if any of the group brings a fowl, it was a sure sign that an operation was performed, for they administer the blood of the fowl into the eye. The fowl has a four-fold use, as they say.

(1) It serves as a sacrifice to the deity which presides over the sickness,

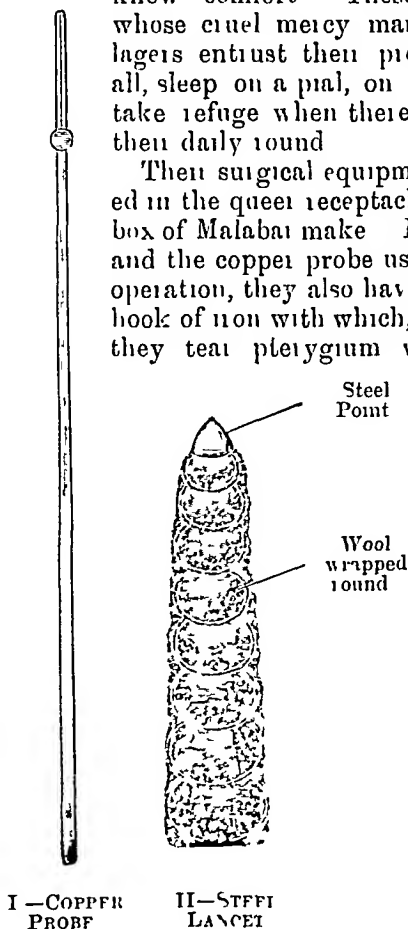
(2) Its blood is used to mask the human blood which oozes out from the puncture,

(3) Incidentally the fowl's blood clots and blocks up the hole,

(4) Most important of all, it evidently goes to the Vydian's curry-pot.

Now when all reassemble, it would sometimes be 3 P.M. Then they take their cold rice (*i e*), remnant of the meal prepared the previous night. They make plates of the leaves of a plant called *calotropis gigantea* on which the rice is served. After the meal they do not rest but take to net weaving, for when they return to their native villages at the harvest season, they fish which is another of their bye-occupations. In their tours they generally halt in a tope close to a well. Only at night do they prepare and eat fresh food which may be either a Sultan's diet to-day or a Fakir's diet to-morrow, for as Lord Macaulay says of the poets of Johnsonian age "they knew luxury, they knew beggary, but they never knew comfort." These poor souls to whose cruel mercy many innocent villagers entrust their precious eyes, after all, sleep on a pial, on which they also take refuge when there is rain. This is their daily round.

Their surgical equipments are preserved in the queer receptacle—the betel-leaf box of Malabar make. Besides the lancet and the copper probe used in the present operation, they also have a pointed bent hook of iron with which, to use their term they tear pterygium which, with the knife they carry for general surgery, completes their surgical equipments. I was able to secure from them the two instruments they used in the couching operation—lancet and probe. A drawing of them is here-with annexed.



The details, place, manner

and method of the operation are the same as in the present case. As a rule the Vydians run away at midnight to another centre before the patients feel the melancholy results of their operation. The apparently astonishing immediate effect, and the positive assurances of the operator have in many cases within my knowledge drawn even the educated classes to them. It is therefore no wonder that the uneducated classes have still recourse to these Vydians. But I am glad to note that even in the villages their methods are being discredited and their fame is gradually dying out, for they leave behind in almost every village many cases of abominable pain in the eye and head after operation. Another point worthy of note is the careful way in which the fact of instrumentation is concealed from the patient, who is made to believe all the time that there is only medicine application. While working in the Government Ophthalmic Hospital, Madras, as an assistant under Major R. H. Elliot, I.M.S., and Captain H. Kirkpatrick, I.M.S., I had often seen patients meddled by couchers even swearing that the Mahomedan Vydian only put medicine and used no instrument whatever. I now see the reason for their assertion and these poor simpletons are not to blame. Some of these Vydians even confessed to me that the operation is sometimes performed under cover, *z.e.*, by spreading a cloth over the head of the patient and operator, as is done at the Brahmin thread investing ceremony when the *Guru* initiates the disciple in the mystery of the sacred *gayatri*.

I am extremely pleased with their way of distinguishing mature from immature cataracts. They generally touch only mature cataracts. It is particularly interesting to note that they very carefully avoid cases where pupils, contracted or dilated, do not well react to light. I had once a patient for cataract extraction and had dilated his pupil with atropine a day previously to know the character of the lens and the amount of the dilatation of the pupil. I showed this case to one of the batches, but they declined to take it up on the ground that the pupil did not react to light.

The Vydians further told me that this art of "hitting the eye" is practised in this very same way from time immemorial, that there are somewhere some old texts written on palmyra leaves, laying down the method. He quoted the words in Tamil. They mean 'removing the lancet after making a puncture, insert the copper probe and, holding it with three fingers, depress the lens with the three-sided edge.' They further told me that the Kannadiputhu families have relations living in the districts of Salem, Tanjore, Trichy and Madurai, who practise the same method without any variation whatever.

REMARKS BY MAJOR R. H. ELLIOT, I.M.S.,
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This paper presents several features of very great interest, to which I desire to draw attention

(1) It is, so far as I am aware, the first eye-witness's description of the coucher's operation, written by one who practises the usual Western operation, and who has been trained to observe in an European hospital.

(2) The method of attacking the cataract from behind, observed by Mr. Ekamabram, has never, so far as I know, been described before. We have always believed that Eastern "couching" was performed from in front, and I am still inclined to think that the front method of working is used by some of the S. Indian couchers, as we find wounds in some of the recent cases which indicate that this is the method employed. Moreover, lay observers have described to us the operation as performed from in front.

(3) The avoidance of ciliary region and of the long ciliary arteries in the preliminary incision is probably more than accidental.

(4) The probe-like instrument with its crude cotton stop reminds us of Bowman's stop needle.

(5) With the above instrument the coucher apparently endeavours to tear through the suspensory ligament of the lens, this would appear to be another intimation that he is not as ignorant of anatomy as one might have thought. It is more than possible, however, that though these men act on well-defined anatomical principles, they are not really themselves aware of the anatomical basis of their knowledge, but act empirically on rules handed down to them through many generations.

(6) The ignorance they display of the dangers of sepsis is appalling and explains the large percentage of eyes lost through septic infection after their operations. This percentage is probably over 40 per cent (*vide* statistics given by myself in a paper on "couching" in this Journal for August 1906).

(7) They would appear to have glimmerings of a diagnostic sense, as shown by their testing the pupil reaction, and yet they sometimes make bad mistakes, for we see couched eyes which bear clear evidence of antecedent glaucoma or optic atrophy.

(8) The use of the fowl's blood to hide the bleeding from the sclerotic wound is ingenious and cunning. It is well worthy of the tradition of native medicine in India.

Reviews

The Transactions of the Bombay Medical Congress, 1909—By Messrs. BRUNLTT COLEMAN & Co., The Times Press, Bombay. Edited by W. E. JENNINGS, M.D., D.P.H., Lt.-Col., I.M.S.

WE have already referred more than once in our editorials and elsewhere to the Bombay Medical Congress, and commented on the marked success of the meeting and on the numerous

valuable papers presented. A very large share of the credit of the Congress belongs to Lieutenant-Colonel Jennings, I.M.S. The same officer has placed the medical profession of India, and indeed of the whole English-speaking world, under a still greater debt of gratitude by the masterly manner in which he has edited the transactions of the Congress.

In a most excellent editor's preface, Colonel Jennings gives a short account of origin of the idea of a Congress, for which His Excellency the Governor of Bombay deserves the full credit. He enumerates briefly some of the principal lessons which are to be learned from the deliberations—these comprise the latest information on Cholera, Dysentery, Enteric Fever, Hili Diarrhoea, Tropical Diarrhoeas, Maternal and Infantile Mortality in India, Malaria, Black-water Fever, Plague, Kala Azar, Sleeping Sickness, Snake Venoms, Beri-Beri and Epidemic Dropsy, Leprosy, Indian Sanitation, Tropical Surgery and Ophthalmic Surgery, in which the Smith school was largely represented. This volume is one that should be in every tropical practitioner's library. The amount of information that is to be obtained on almost every form of tropical disease is unique, as a record of good work done by the medical profession in India no better testimony can be asked for.

We offer the editor our heartiest congratulations on the splendid volume he has been able to bring out, and on the skill and ability he has displayed from the inauguration of the conception of a Congress up to the publication of this valuable record of medical progress. The publishers have done their part of the work in a manner worthy of great praise.

A System of Clinical Medicines—By THOMAS DIXON SAVILL, M.D. (Lond.) Second Edition, revised by the Author, assisted by F. S. Langmead, M.D., and AGNES T. SAVILL, M.A., M.D. London: Edward Arnold, India: Longmans, Green & Co.

THE present edition of Savill's well-known Clinical Medicine appears in one volume instead of two. The amount of material remains however practically the same, new matter replacing old. One very useful change has been made in the printing—the smallest of the types has been replaced by the medium-sized type. This work is so well known and the former edition was so favourably received that a long discussion of its merits is not necessary. Suffice it to say that the present edition has been brought thoroughly up to date and that the original plan and arrangement of the text have been maintained. The volume will be found of the greatest value to practitioners and senior students, and we have no hesitation in recommending it to the profession in India. There are over 170 illustrations which are distinctly good and will be found of great service to the reader. The publisher deserves a special word of praise for the hand-

some volume he has succeeded in producing and for the clear and readable type made use of. The illustrations and coloured plates are beautifully executed.

A Text book of Nervous Diseases.—By W. A. TURNER, M.D., F.R.C.P., and T. G. STEWART, M.B., M.R.C.P. Messrs J & A Churchill.

THIS is a work that merits the careful attention of the profession. It gives in a short and practical form an account of the diseases of the nervous system. Special attention has been given to the clinical description of the conditions met with, but the etiology, pathology and treatment have received full consideration. The book is divided into XIX parts, each dealing with separate conditions. A short summary of the anatomy and physiology opens the list; there is then a very useful account of the examination of the nervous system for disease, in which many useful hints and methods will be found. The remaining parts take up the different disorders under a classification based on practical experience, and one, which the authors have found useful in the teaching of students. A special feature of the book is the wealth of illustrations—there are close on 200 of these and there is no doubt they increase the value of the volume immensely. Most of these illustrations are from photographs of the actual conditions as observed. We consider this volume to be one of the best on the market and is of special value on account of the profuse illustrations. As might be expected, the publishers have done their share of the production in such a manner that an exceedingly handsome volume is the result.

Materia Medica, Pharmacy, Pharmacology and Therapeutics—By W. HALE WHITE, M.D. (Lond.), Senior Physician and Lecturer on Medicine at Guy's Hospital. Eleventh Edition. 1909. Pp. 695. J & A Churchill, London. Price 6s 6d nett.

THIS work is so well known for its general excellence that it is not necessary for us to say much about it. A perusal of this, the eleventh edition, shows numerous alterations and additions, necessitated by recent advances in the knowledge of therapeutics, the result of which is to bring the book thoroughly up to date. It is an excellent text-book for students, and may be read with equal advantage by practitioners anxious to keep themselves abreast with modern views and methods.

Scientific Memoirs No. 36 Observations on Rabies—By Major G. LAMB, I.M.S., and Capt. A. G. MCKENDRICK, I.M.S. Government of India.

THIS memoir deals more particularly with an atrophic form of rabies occurring in animals. It has been generally understood that the passage of rabies virus through rabbits exalted the virulence, and that it was probably that in nature the virus had to pass through some animal that had the power of increasing the virulence in order to retain its powers. It

would appear, however, from the work of Marie that passage through such an animal is unnecessary, as the virus does not appear to lose, but to increase, its virulence when passed through a series of dogs. The authors of this memoir have confirmed these results but have brought forward evidence that while negro bodies can be found in the nervous system during the first few passages, in the later passages none can be seen.

They describe several cases of a form of rabies in which progressive emaciation is the chief symptom. This type has been observed to follow both subcutaneous and subdural inoculations. The disease generally runs a more or less chronic course, they have demonstrated this condition to be true rabies, a further important point, and one that up to the present observations has hardly been considered possible, is that rabbits showing this form of rabies have completely recovered. Finally they state this form of the disease has been observed in dogs, but do not say if any of the dogs recovered.

The observations are admittedly fragmentary and will require a good deal of careful work in corroboration before the conclusions arrived at can be generally accepted.

Further work is recorded on the susceptibility of various animals toward fixed rabbit virus, and on an attempt to immunise monkeys by means of a single dose of fixed rabbit virus injected subcutaneously. Certain observations were also carried out on the bactericidal properties of the serum of patients both during the course of anti-rabic inoculations and after the treatment had been completed. No very definite findings have been so far arrived at.

Merck's Annual Report—Vol XXII, 1908

THE medical year would not be complete without the publication of the report of the recent advances in pharmaceutical chemistry and therapeutics from Merck's well-known manufacturing establishment.

The present volume gives an immense amount of information on organo-therapy and the preparation of drugs and is worthy of careful perusal. All that is known with regard to organo-therapy and organo-therapeutic preparations will be found carefully discussed in the first hundred pages of this report.

The preparation of drugs and their exhibition are also fully dealt with in connection with the special symptoms and conditions in which they have been found most effective. As a book of reference to recent work on therapeutics, this report is invaluable.

Mosquito or Man—By Sir ROBERT BOYCE, F.R.S. London: John Murray, 1910

IN this book a clear account is given of the remarkable advances which have been made in the scientific study of tropical diseases in recent years. The book is well got up and the illus-

trations are numerous and excellent. It is very interesting to read that Army Surgeons, Indian, Home and American, have been the leaders in this great work, the names of Ronald Ross of the Indian Medical Service, Sir David Bruce of the Army Medical Service, and Reed, of the American Army stand out prominently in this review. Professor Boyce says regarding the work, "discoveries not only brilliant in themselves scientifically, but, on account of their eminently practical bearing, of immense importance to the prevention of suffering." It is only necessary to compare our knowledge of, say only, 15 years ago with that of to-day regarding such diseases as malaria, yellow fever, sleeping sickness and Malta fever, and we have at once a true appreciation of the value of the work described in this book. On page 128, in the description of the transmission of yellow fever, a curious error occurs, it is stated that the *Stegomyia calopus* after a latent period of three days becomes itself infected and capable of transmitting the disease to man, whilst on page 133 the correct period is stated—"A very definite number of days must elapse before the mosquito is itself infective, and capable of transmitting the virus, approximately this period is twelve days."

The Relapsing Fever of Panama—Dailing*
—Thirty-one cases of relapsing fever have been recognised in the Commission hospitals in the canal zone during three years out of about 65,000 admissions, where blood examinations are made of every patient entering the medical wards. The proportion of cases amongst the white and black employes is as 7 to 1, although the number of white to negro employes during the period from which the data were compiled was as 2 to 7. The disproportion may be explainable on the hypothesis that the black population is "Salted" to the virus of this disease. Dailing concludes from his investigations that the relapsing fever of Panama is distinct from the analogous fever of Africa, Europe and Asia, although belonging to the same class. The micro-organism causing the local relapsing fever belongs to the group *Sp. obermeieri*, *Sp. duttoni*, and *Sp. carteri*. The natural mode of infection has not been definitely established so far.

Sarcosporidiosis—(With Report of a case in man) Dailing† found a sarcocyst in the biceps muscle of a typhoid patient in Panama. He gives a full description and drawing of the parasite. The sporozoite does not show the characteristic centrosome and chromatic body at one pole surrounded by a halo of achromatic substance, such as has been found in all recently observed sarcosporidia. He is of opinion that the sarcocyst gives rise to no pathological change or untoward symptom. Pfeiffer, Kaspareck,

* *The Archives Internal Medicine*, Aug 1909, Vol 4, pp 150, 155

† *The Archives of Internal Medicine*, April 1909

Dofflein, and Prowazek, on the contrary, consider that they may produce pathological changes. In addition to the case of Darling, authentic cases of infection of man by this parasite have been described by (1) Lindeman (Kolle and Wasserman's Handbuch, Vol I 2) Rosenberg (Zeit f Hyg, 1892, (3) Baraban and St Renny, (4) Vuilleman (Comp Rend de l'Acad des Sci, Paris CXXXIV). The sarcosporidia first described by Miescher in 1813, appears to have a pretty wide distribution, thus Willey, Chalmeis and Phillip* have shown that 5.8 per cent of the slaughtered buffaloes of Colombo harbour sarcosporidia, Chatterjee† has observed that sarcosporidia are common in the voluntary and cardiac muscles of cows in Bengal. Recent work by Betegh has shown that the crescent-shaped sporozoites inside the cysts have a centrosome at the middle, also a number of coarse chromatic granules near the middle and an accumulation of chromatic substance surrounded by a halo of a chromatic substance in the thick end of the sporozoite. Chatterjee has also observed, in the sporozoite described by him, the presence of chromatic substance surrounded by a halo of a chromatic material at one end and a nucleus like structure in the middle of the *crescentic parasite*.

Histoplasmosis, a fatal disease of tropical America—Darling‡ during 1905-06 examined at Ancon Hospital, Canal Zone, Panama, smears from the spleen, liver, and rib marrow of all cadavers in which there was splenomegaly and succeeded in finding the micro-organism associated with the lesions. As a result of his investigations he arrives at the following conclusion: Histoplasmosis is a fatal infectious disease of tropical America resembling Kala-azar of India. It is characterised clinically, by splenomegaly, emaciation, irregular pyrexia, leucopenia and anaemia. The pathological features are the invasion of the endothelial cells in the smaller lymph and blood vessels and capillaries by enormous numbers of a small encapsulated micro-organism (*Histoplasma capsulatum*) causing necrosis of the liver with emphysema, splenomegaly, pseudo-granulomata of the lungs, small and large intestines, with ulceration of the latter, and necrosis of lymph nodes draining injected viscera.

The disease is caused by a small round or oval micro-organism, 1-4 μ in diameter possessing a polymorphous, chromatin nucleus, basophilic cytoplasm and achromatic spaces all enclosed within an achromatic refractile capsule.

The micro-organism differs from the Leishman-Donovan body of kala-azar in the form and arrangement of its chromatin nucleus, and in not possessing a chromatin rod."

Service Notes

DEATHS

LIEUTENANT COLONEL JOHN PATRICK BARRY of the Bombay Medical Service died at Innsbruck, in the Tyrol on 2nd January 1910. He was born on 5th December, 1851, educated at Trinity College and the Catholic University, Dublin, took the degrees of B.A. and M.B. at Trinity in 1880, and the diploma of L.R.C.S.I. in 1879, and entered the I.M.S. as Surgeon on 1st April 1882. He became Surgeon Major on 1st April 1891, Lieut. Colonel on 1st April 1902, and was placed on the "selected list" on 30th June, 1905. For several years past he had been Presidency Surgeon of Third District Bombay, with attached duties. He served in Burma in 1886-87, was mentioned in despatches (G.O. No. 339 of 1887) and received the medal and clasp. He was the author of a book on the Balkan Peninsula, 'At the Gates of the East: A Book of Travel among Historic Wonderlands,' published in 1906.

SURGEON MAJOR THOMAS EGERTON HALL, V.C., C.I., M.D., died at Botterly Hill near Nantwich, on December 25th, 1909, in his 75th year. He was appointed Assistant Surgeon in the 7th Fusiliers December 14th, 1854, and in the following year proceeded to the Crimea, and was present at the siege of Sebastopol and at the assaults of the Redan on June 18th and September 8th, receiving a medal with clasp and the Turkish medal. He was also awarded the Victoria Cross "(1) For remaining with an officer who was dangerously wounded (Captain H. M. Jones 7th Fusiliers) in the fifth parallel on September 8th, 1855, when all the men in the immediate neighbourhood retired, excepting Lieutenant William Hope and Dr. Hale, and for endeavouring to rally the men in conjunction with Lieutenant Hope (2) For having on September 8th, 1855, after the regiments had retired from the trenches, cleared the most advanced step of the wounded, and carried into the step, under a heavy fire several wounded men from the open ground being assisted by Sergeant Charles Fisher, 7th Royal Fusiliers." He subsequently had medical charge of a field force under Colonel Blunt during the Indian Mutiny, detached from Lahore to the Trans Indus Frontier during the hot season of 1857. Dr. Hale retired from the service in 1876, and was made a Companion of the Order of the Bath in 1906.—B. M. J.

RETIREMENT

COLONEL RODRICK MACRAE, of the Bengal Medical Service retired on 25th February 1910. He was born on 25th May 1851, educated at Edinburgh University, where he took the degrees of M.B., C.M., in 1873, and entered the I.M.S. as Surgeon on 31st March, 1875 becoming Surgeon Major on 31st March 1887 Surgeon Lt. Colonel on 31st March, 1895 being placed on the selected list on 1st April, 1901, and attaining the rank of Colonel on 12th February, 1907. He served in the Afghan war of 1878-80 in the afghan at Jagdallak, with Sir Charles Gough's Column to Sherpur, and in the operations in the Kohistan, Lagar, and Maidan Valleys, receiving the medal with clasp. Immediately after the war he entered Civil employment in Bengal, and served as Civil Surgeon of the districts of Jalpaiguri, 24 Parganas, Shrubabadi, Suran Chhamparan, Gaya, Dalka, and Hazaribagh. In 1904 he officiated as A.M.O. of the Central Provinces, and in February 1905 he was appointed Inspector General of Civil Hospitals in Burma being the first Bengal Officer to hold that appointment, probably also the last. Later in the same year he was transferred to Bengal, when Colonel S. H. Browne went on leave, and continued on the latter's retirement. On 22nd March, 1907, he was appointed Honorary Surgeon to the Viceroy.

MEDICAL DEPARTMENT

IN supersession of the rules contained in the late Department of Military Supply Notification No. 16, dated the 13th March 1907, the following regulations for the grant of study leave to officers of the Indian Medical Service are published for information—

Regulations regarding the Grant of Study Leave to Officers of the Indian Medical Service

1. Extra furlough for the purpose of study may be granted to officers of the Indian Medical Service on the recommendation of the Director General, Indian Medical Service.

2. The period of such study leave will be calculated in the case of an officer under Military Leave Rules at the rate of one month for each year of pension service and in the case of an officer under Civil Leave Rules at the rate of one month for each year of active service, as defined in the Civil

* Spolia Zeylanica Vol II 1905

† Indian Museum Records, Vol I, Part I, No 5 Calcutta, June 1907

‡ Journal of Experimental Medicine, Vol XI, No 4 1909

Service Regulations, up to a total in either case of 12 months in all during an officer's service.

3 Study leave may be taken at any time, but will not be granted more than twice in the course of an officer's service. This restriction does not apply to an officer who has part of his furlough converted into study leave under rule 8.

4 The minimum period of study which will render an officer eligible for study leave shall be two months.

5 The minimum period of leave granted solely as study leave shall be six months, time spent on the journey to and from India by an officer whose study leave is not combined with any other kind of leave, will reckon as study leave, but the allowance specified in rule 10 will be granted during the period of study only. An officer whose study leave is combined with any other kind of leave will, however, be required to take his period of study leave at such a time as to retain at its conclusion, a balance of other previously sanctioned leave sufficient to cover his return journey to India.

6 Study leave can be combined with any other kind of leave, provided the period occupied in study is not less than two months and, in the case of leave on medical certificate, provided that the Medical Board at the India Office certifies that the officer is fit for study. In the case, however, of officers in military employment, study leave cannot be taken in continuation of the combined privilege leave and furlough admissible under the terms of Indian Army Order No 61 of 1904, if the total period would thereby exceed eight months, but study leave may be so taken provided such leave is for not less than two months and the total period of combined privilege leave, furlough and study leave does not exceed eight months, this limitation to eight months does not, however, apply in the case of study leave combined with privilege leave alone. The total period of absence from duty in India, in the case of officers under the Leave Rules of 1886 for the Indian Army, will be strictly limited to two years.

7 Except as provided in rule 8, all applications for study leave shall be submitted, with the audit officer's certificate, to the Director General, Indian Medical Service, through the prescribed channel, and the course or courses of study contemplated and any examination the candidate proposes to undergo shall be clearly specified therein.

8 Officers on furlough who wish to have part of their furlough converted into study leave should address the Under Secretary of State, India Office, and should furnish a statement showing how it is proposed to spend the study leave. Similarly officers on furlough or other leave who desire to have it extended for purposes of study should address the Under Secretary of State, but in addition to the statement of the proposed study they must support their applications with documentary evidence of their having obtained the approval of the authorities concerned in India to their applying for an extension of leave.

9 An officer who is at home on combined leave may be permitted to commence a course of study before the end of his privilege leave, and to count the period so spent as part of his study leave, without forfeiting his privilege leave allowances during such period.

10 For the course of study, lodging allowance at the rate of 8s a day for a field officer 6s for a Captain and 4s for a Lieutenant will be granted. It is to be understood that in order to qualify for the grant of study leave or for the receipt of lodging allowance, a definite course of study at a recognized institution which will occupy the time of the officer for five or six days a week must be pursued. This allowance will not be admissible to an officer who retires from the service without returning to duty in India after a period of study leave.

11 The rate of pay admissible during study leave to an officer under Civil Rules is determined as follows—

A—If the rate of pay admissible during furlough earned by service under Civil Rules is higher in his case than that admissible during furlough earned by service under Military Rules then—

(1) He draws pay at the former rate for such period of his study leave as has been earned by his service under Civil Rules, and

(2) for the remainder, if any, he can elect either—

(a) to draw pay at the rate admissible during furlough earned by service under Military Rules, or

(b) to draw it at the rate admissible during furlough earned by service under Civil Rules for a period not exceeding the amount of such furlough at his credit. In this case an equal period of the furlough at his credit earned by service under Civil Rules will be treated as if it had been earned by service under Military Rules.

B—If the rate of pay admissible during furlough earned by service under Military Rules is higher in his case than that admissible in respect of service under Civil Rules, then—

(1) He draws pay at the former rate for such portion of his study leave as has been earned by his service under Military Rules, and

(2) for the remainder, if any, he can elect either—

(a) to draw pay at the rate admissible during furlough earned by service under Civil Rules, or

(b) to draw it at the rate admissible during furlough earned by service under Military Rules for a period not exceeding the amount of such furlough at his credit. In this case an equivalent period of the furlough at his credit earned by service under Military Rules will be treated as if it had been earned by service under Civil Rules.

12 On completion of study the certificates of examinations passed, or the certificates of special study, which must show the dates of commencement and termination of the course, with any remarks by the instructor, shall be forwarded to the Under Secretary of State, India Office, who will arrange for the transmission of copies of the documents to the Director General, Indian Medical Service. Officers may also be called upon to report themselves in person to the President of the Medical Board, India Office, on the conclusion of their course of study.

13 Study leave will count as service for promotion and pension, but except so far as it may be taken during privilege leave (see Rule 9), it will not count for furlough or any other leave. It will not affect any leave which may already be due to an officer, and will not be taken into account in reckoning the aggregate amount of furlough taken by an officer towards the maximum period of six years admissible under articles 299 of the Civil Service Regulations.

UNIVERSITY OF LONDON AND LONDON SCHOOL OF TROPICAL MEDICINE EXAMINATIONS

University of London M D Branch VI (Tropical Medicine)

Captain A B Fry, I M S, and Captain R A Lloyd, I M S

London School of Tropical Medicine

The following candidates were approved at the examination in Tropical Medicine—

Major H J Walton, I M S, Captain A B Fry, I M S, Captain T H Gloster, I M S, and Major R F Baird, I M S. The first two passing with distinction.

His Excellency the Governor in Council is pleased to direct that Lieutenant Colonel J G Hojel, M B, B S, I M S, should resume charge of his appointment as Surgeon, Gokuldas Tejpal Native General Hospital, Bombay, and to appoint Major S Evans M B, M Ch, I M S to act as Presidency Surgeon, Third District, with attached duties.

The services of Captain W Gillitt, M B, I M S, are placed permanently at the disposal of the Government of Bengal for employment in the Jail Department.

TO BE MAJOR

Dated 25th July 1909

CAPTAIN THOMAS HENRY DELANY, M D, I I C S I

INDIAN MEDICAL SERVICE SPECIALISTS—Lieutenant T D Munson, Indian Medical Service, is appointed specialist in (f) Mental Science, Northern Army, with effect from 1st December 1909.

In exercise of the power conferred by section 10 of the Indian Councils Act, 1861 (24 and 25 Vict, C 67), as modified by the Indian Councils Act, 1909 (9 Ldw 7, C 4) and in pursuance of the provisions of Regulation I B (a) and the Regulations for the nomination and election of Additional Members of the Legislative Council of the Governor General, the Governor General is pleased to nominate the following person being official, to be Additional Member of the said Council—

SURGEON GENERAL CHARLES PAIDEN LUKIS, M D, I M S

INDIAN MEDICAL SERVICE SPECIALISTS—Lieutenant R H Bott is appointed a specialist in (a) Advanced Operative Surgery, 4th (Quetta) Division, with effect from 10th November 1909.

MAJOR E R ROST, I M S, Junior Civil Surgeon, Rangoon, is appointed to officiate as a First Class Civil Surgeon, in place of Lieutenant Colonel A O Evans, I M S, on leave, with effect from the 1st December 1909.

His Excellency the Governor in Council is pleased to appoint Lieutenant Colonel C T Hudson, M R C S, I R C P, I M S, to be a Civil Surgeon of the First Class, vice Lieutenant Colonel W H Burke, M B, I M S, retired.

The services of Lieutenant Colonel G W P Denny, Indian Medical Service (Bengal), an Agency Surgeon of the 1st class, and Agency Surgeon and Administrative Medical

Officer in the North West Frontier Province, were placed temporarily at the disposal of His Excellency the Commander in Chief in India for the period from 12th October to the 12th December 1909, both days inclusive

LIEUTENANT COLONEL G W P DENNIS, Indian Medical Service (Bengal), an Agency Surgeon of the 1st class, is posted, on return from military duty as Agency Surgeon and Administrative Medical Officer in the North West Frontier Province, with effect from the 13th December 1909

LIEUTENANT COLONEL A L DUFF, Indian Medical Service (Bengal), an Agency Surgeon of the 2nd class was appointed to officiate as an Agency Surgeon of the 1st class and Agency Surgeon and Administrative Medical Officer in the North West Frontier Province from the 12th October to the 12th December 1909, both days inclusive

LIEUTENANT COLONEL A L DUFF, Indian Medical Service (Bengal), an Agency Surgeon of the 2nd class, is posted as Civil Surgeon of Peshawar, with effect from the 13th December 1909

CAPTAIN F E WILSON Indian Medical Service, was appointed on return from leave to officiate as an Agency Surgeon of the 2nd class and posted as Civil Surgeon of Peshawar from the 12th October to the 12th December 1909 both days inclusive

THE King has approved of the retirement of the following Officers —

INDIAN MEDICAL SERVICE

Lieutenant Colonel Thomas David Collis Barry Dated 18th November 1909

Lieutenant-Colonel Edwin Harold Brown, M D F R C S Dated 10th November 1909

CAPTAIN L A H LACK, I M S, whose services have been placed at the disposal of the Lieutenant Governor for duty in connection with the suppression of plague, is posted to Mandalay in place of Captain Baulth, transferred

ON relief by Captain Lack, Captain W H Baulth, I M S, is posted to Saguing as Special Plague Medical Officer Saguing Division

CAPTAIN E O THURSTON, I M S, made over charge of the Gaya jail to Lieutenant-Colonel C E Sunder, I M S, on the forenoon of the 22nd December 1909

MAJOR C A LAKE I M S made over charge of the Monghyr jail to Captain E O Thurston, I M S on the afternoon of the 27th December 1909

THE services of Captain J F James, M B, I M S, are placed temporarily at the disposal of the Government of Eastern Bengal and Assam

THE services of Captain R Steen, M D, I M S, are placed permanently at the disposal of the Government of the United Provinces

CAPTAIN T G N STOKES, M B, I M S, is appointed to be Sanitary Commissioner, Central Provinces

THE services of Lieutenant S B Mehta F R C S E, I M S, are replaced at the disposal of His Excellency the Commander in Chief in India

CAPTAIN P K CHITALE, I M S, Civil Surgeon 2nd Class, is appointed to officiate as Civil Surgeon, 1st Class, with effect from the 18th August 1909 *vice* Major N R J Rainier, I M S on privilege leave, or until further orders

MAJOR W D SUTHERLAND, I M S, Civil Surgeon 2nd Class, is appointed to officiate as Civil Surgeon, 1st Class with effect from the 20th November 1909 *vice* Lieutenant Colonel A Buchanan I M S, on leave or until further orders

WITH effect from the same date Captain P K Chitale, I M S, Officiating Civil Surgeon, 1st Class, reverts to the 2nd Class

CONSEQUENT on the return from privilege leave of Major N R J Rainier, I M S, Major W H Kemick, I M S Officiating Civil Surgeon 1st Class, reverts to the 2nd Class with effect from the 22nd November 1909

CAPTAIN W TARR I M S, on special duty in the Jubbulpore District, is appointed to officiate as a Civil Surgeon and is posted to the Chanda District

UNDER Section 6 of the Prisons Act, 1894 the Chief Commissioner is pleased to appoint Captain W Tarr, I M S, Officiating Civil Surgeon, Chanda to the executive and medical charge of the Chanda District Jail

CAPTAIN D N ANDERSON, I M S, Officiating Civil Surgeon Chanda, is, on relief, transferred to Nagpur on general duty

HIS Excellency the Governor in Council is pleased to appoint Captain J L Lunham, M B, I M S, to act as Second Class Civil Surgeon at Surat

HIS Excellency the Governor in Council is pleased to appoint Captain W H Dickinson, M D, B Ch, I M S, to be Chemical Analyser to Government, Bombay *vice* Lieutenant Colonel T D Collis Barry, I M S, retired

ON his arrival from India, Captain H S Matson, I M S was placed on special duty in the Pegu Division, as a temporary measure, prior to his assuming charge of his duties as Special Plague Medical Officer, Meiktila Division to which he has been posted in this Department Notification No 427, dated the 21st December 1909

HIS Excellency the Governor in Council is pleased to appoint Captain W H Dickinson, M D, B Ch, I M S, to be Professor of Chemistry, Grant Medical College, *vice* Lieutenant Colonel T D Collis Barry, I M S, retired

MAJOR S C EVANS, I M S M B, M Ch, and Lieutenant Colonel J G Hojel, M B, B S, I M S, respectively, delivered over and received medical charge of His Majesty's House of Correction and Common Prison, Bombay, on the 11th December 1909, before office hours

CAPTAIN L P STEPHEN, M B, I M S, was appointed to act as Professor of Ophthalmic Medicine and Surgery, Grant Medical College, Bombay, with effect from 1st October 1909

LIEUTENANT COLONEL T W STEWART, M B, I M S, was granted by His Majesty's Secretary of State for India study leave from the 3rd May to the 16th July 1909

MAJOR N P O'G LALOR, M B, I M S has been granted by His Majesty's Secretary of State for India an extension of three months study leave

LIEUTENANT COLONEL JOHN LEFOLD POYNTER, I M S, Madras, has been permitted by the Right Hon'ble the Secretary of State for India to retire from the service subject to His Majesty's approval, with effect from the 12th December 1909

COLONEL ROBERT DAVIDSON MURRAY, M B, I M S, Bengal, has been permitted by the Right Hon'ble the Secretary of State for India to retire from the service subject to His Majesty's approval, with effect from the 29th March 1910

LIEUTENANT COLONEL JOHN ANDERSON, M B, I M S, Bengal, has been permitted by the Right Hon'ble the Secretary of State for India to retire from the service, subject to His Majesty's approval, with effect from the 1st April 1910

MAJOR N R J RAINIER, I M S, Civil Surgeon, Chhindwara, is transferred to the Hoshangabad District

UNDER Section 6 of the Prisons Act 1894, the Chief Commissioner is pleased to appoint Major N R J Rainier, I M S, Civil Surgeon, Hoshangabad, to the executive and medical charge of the Hoshangabad District Jail

CAPTAIN A M ELMING I M S, Civil Surgeon, who was granted combined leave by Orders No 2567 dated the 3rd December 1907 No 2111 dated the 9th October 1908, and No 2609 dated the 9th December 1908, was granted, by His Majesty's Secretary of State for India, study leave for six months in 1908-09

ASSISTANT SURGEON M M VAKIL, L M & S, and Captain M S Irani I M S, respectively delivered over and received charge of the Bijapur District Prison on the 24th December 1909, after office hours

CAPTAIN M S IPANI, I M S, and Captain R W Anthony, I M S, respectively delivered over and received charge

of the Ratnagiri District Prison on the 21st December 1909 before office hours

HIS Excellency the Governor in Council is pleased to appoint Captain E C G Maddock, M B, I M S, to be a Civil Surgeon of the second class, *vice* Lieutenant Colonel T D Collis Barry, I M S, retired

HIS Excellency the Governor in Council is pleased to appoint Lieutenant Colonel W E Jennings, M D, D P H, I M S, on return from leave, to act as Health Officer of the Port of Bombay, *vice* Lieutenant-Colonel J Gimmin, V C, C I E, I M S, proceeding on deputation, pending further orders

HIS Excellency the Governor in Council is pleased to appoint Captain I D Jones, M B, I M S, to act as second class Civil Surgeon, Sholapur, pending further orders

INDIAN MEDICAL SERVICE SPECIALISTS—Lieutenant V B Green Armytage is appointed a specialist in (h) midwifery and diseases of women and children, Burma Division, with effect from 18th September 1909

CAPTAIN A W TUKE, I M S, and Captain A J V Betts, I M S, respectively delivered over and received charge of the office of the Deputy Sanitary Commissioner, Western Registration District, on 18th December 1909, after office hours

CAPTAIN A J V BETTS, I M S, and Dr J W Van Millingen respectively delivered over and received charge of the office of the Deputy Sanitary Commissioner, Western Registration District, on 22nd December 1909, after office hours

CAPTAIN A W TUKE, F R C S I, I M S, was appointed to act as Civil Surgeon, Nasik, in addition to his own duties from the 25th September to the 18th October 1909

CAPTAIN E C G MADDOCK, M B, I M S, has been granted privilege leave of absence for three months from the date of relief

WITH reference to Government Notification No 1416, dated 13th July 1909, Captain L T R Hutchinson, M A, M D, B C (Cantab), I M S, Professor of Physiology, Histology and Hygiene at the Grant Medical College, Bombay, was on study leave from 14th October 1908 to 16th January 1909 and from 1st March to 31st August 1909

ON return from leave Major E S Peck, I M S, Civil Surgeon, reported his arrival at Bombay on the 19th of November 1909

THE Lieutenant Governor is pleased to make the following appointments, posting and transfers—

Name	Rank	Appointed	Posted or transferred to	With effect from	REMARKS
Khan Bahadur Ata Muhammad Khan	Civil Surgeon		Mianwali	1st December 1909	On return from leave relieving Assistant Surgeon Lala Lachhman Das II
Major E S Peck, I M S	Civil Surgeon		Jullundur	24th November 1909 (afternoon)	On return from leave, relieving Major H Smith, I M S
Major H Smith, I M S	Civil Surgeon, Jullundur		Amritsar	27th November 1909	Relieving Senior Assistant Surgeon Hari Chand

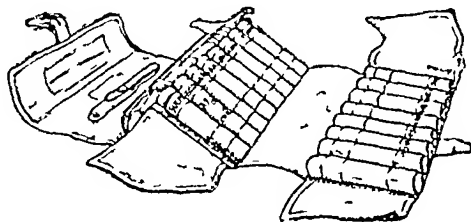
THE services of Captain W S McGillivray, M B, I M S, are replaced at the disposal of His Excellency the Commander in Chief in India

LIEUTENANT COLONEL J L POYNDER, I M S, Civil Surgeon, has been granted, by His Majesty's Secretary of State for India, extraordinary leave without pay for eight days, in extension of the combined leave granted him by orders No 1834 dated the 28th August 1907, No 2667 dated the 17th December 1908, and No 1315, dated the 15th June 1909

CAPTAIN STANLEY TREFUSIS CRUMP, I M S, whose services have been placed temporarily at the disposal of the Local Government, is posted to the medical charge of the Akyab District, in place of Major J Penny, I M S, proceeding on leave

THERAPEUTIC NOTES

THE "Tabloid" medicine case carried "Farthest South" by Lieut Shackleton was provided for the expedition by Messrs Burroughs, Wellcome & Co. It consisted of "Soloid" and "Tabloid" preparations. The illustrated case was taken by the party that made the ascent and reached the summit of Mount Erebus, it was used in the southern journey, covering a distance of over 2,000 miles. Even in these regions the medicines were found absolutely satisfactory



BRUSON JUNIOR DIABETIC BREAD

This bread is said to be the only palatable diabetic bread on the market and it is specially suitable for use in India as, owing to the manner in which it is prepared and sent out in sealed boxes, it will keep for a considerable time without deterioration or loss of flavour

We have received a sample of the bread and can vouch as to its palatableness and consider it should be given a fair trial. In India probably diabetes is more commonly met with than anywhere else in the world and a substitute for the highly carbohydrate diet of Indians is urgently needed. This scientific commercial product should go a considerable way in supplying the much felt want. The profession can ill afford to miss any opportunity afforded in the amelioration of the symptoms of diabetes and should take advantage of this method introduced quite recently

THE ACIDULOUS WATERS OF BELIN

The acidulous waters of Belin in Bohemia are well known as some of the most excellent of mineral waters. They compare favourably with many of the most famous thermal springs

This water on account of the large quantity of bicarbonate of soda and carbonic acid it contains forms a most agreeable and cooling table drink. These springs have been known since the seventh century, but it is only of later years that they have attracted the attention they deserved. The medicinal effects of the acidulous waters of Belin are most plainly to be seen in disorders of the stomach and intestines and in gout

PHARMACEUTICAL PREPARATIONS

Messrs Knoll & Co of Ludwigshafen have lately been appointing agents in this country for the supply of their pharmaceutical preparations. They issue three interesting booklets which practitioners can obtain from Messrs Smith,

Stanistreet & Co, Calcutta, free of charge. These booklets are entitled *The Treatment of Gonorrhoea & Cystitis with Santyl* and *The Mode of Action of the Balsam*, *Pharmacological and Chemical Investigations on Syphilis*, *Sedative and Hypnotic Therapy* by Dr Hans Krieger and Dr R v d Velden. Messrs Knoll's advertisement appears in another portion of the I M G

DISINFECTANTS

WITH regard to the importation of disinfectants the South African Customs Union have taken up a very praiseworthy attitude. No disinfectant that does not conform to a fixed standard is allowed in entry into the country. In view of the enormous amount of spurious disinfectants now on the market this is as it should be. Large quantities of spurious disinfectants are imported into this country made of refuse creosote oil, from which all the active elements have

been extracted. Lulled into security by the smell of these so-called disinfectants and attracted by their cheap price, the public waste their money and run considerable risks over preparations that are quite useless.

The Director General of the Indian Medical Service has laid down that the disinfectant used by the Medical Stores Department is a sponged form of cresol which forms a stable emulsion with water in any proportions and possesses a carbolic coefficient of not less than twelve as tested by the Rideal Walker test against the bacillus typhosus. The Medical Stores Department will not, however, recognize proprietary preparations, but only the standard of efficiency. In view of the importance of the subject it seems a pity that the Government do not take a firm stand and altogether forbid the importation of a disinfectant that does not reach a certain standard. It would certainly render the task of guarding the public health an easier matter than it is at present.

The disinfectant manufacturers who have been pushing first class articles in India are Jeyes Newton Chambers, and Pearsons Antiseptic Co. Jeyes preparation is known as cyllin, Newton Chambers as izal and Pearsons as hycol. As all these makers will supply an article having as high a Rideal Walker coefficient as the purchaser cares to pay for, there is practically nothing to choose between the three. But there is this to be said in favour of all three that the purchaser knows exactly what he is buying.

The manufacturers of cyllin and izal have had their Agents in Calcutta, Bombay and Madras for some time. Now Pearsons Antiseptic Company have established a depot in Calcutta, whence they are starting an active campaign. If by the aid of their propaganda these manufacturers of really useful disinfectants can succeed in impressing the public with the futility of using rubbish they will be doing a good service—and this quite apart from the benefits to be derived to the consumer from free competition in articles of necessity.

CHRISTIAN ENDFAVOUR CONVENTION AT AGRA

In connection with the great Missionary Convention at Agra under the auspices of the India Christian Endavour Union, an exhibition was held, which was to be of considerable interest to medical men. It consisted of drugs, pharmaceutical preparations, medicine cases and medical equipments arranged by Messrs. Burroughs Wellcome & Co. of London, and primarily intended for medical missionaries who were delegates to the Convention. The exhibit was also open for the inspection of any other medical men who cared to take the opportunity of seeing it and well repayed a visit.

In addition to a variety of medicine cases and medical equipments containing the well known and reliable 'Tabloid' and 'Soloid' products Burroughs Wellcome & Co. exhibited some synthetic substances new to medicine which are the result of chemical research. Of these the most interesting are the two important Arginine salts, Sorimin and 'Orsudan'. These organic salts of arsenic have been shown to be of special value in cases of syphilis, typhosomiasis and malaria. Sorimin, although containing 2.28 of arsenic is tolerated, in much larger doses than the inorganic salts of arsenic and some remarkable results have been obtained by its use.

A sterilised solution may readily be made by boiling it in water (1 part in 5) and it is then usually administered as an intramuscular injection. Wellcome brand quinine sulphate is shown in two varieties namely, the large flakes and the compact crystals. The latter are certainly to be preferred as much more portable and convenient. Wellcome's anti-dysentery serum from horses immunised against a culture of bacillus dysenteriae obtained from several cases of dysentery should prove useful in this climate. 'Wellcome' anti-typhoid Serum and Anti-Venom Serum are others of the series specially interesting to Medical men in India. The last is prepared from the Serum of horses immunised against the Venom of a number of the more poisonous snakes.

Notice

SCIENTIFIC Articles and Notes of interest to the Profession in India are solicited. Contributions of Original Articles will receive 25 Reprints gratis if requested.

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to THE EDITOR, *The Indian Medical Gazette*, c/o Messrs. Thacker, Spink & Co. Calcutta.

Communications for the Publishers relating to Subscriptions, Advertisements and Reprints should be addressed to THE PUBLISHERS Messrs. Thacker, Spink & Co., Calcutta.

Annual Subscriptions to *The Indian Medical Gazette*, 1s 12 including postage in India. 1s 11 including postage, abroad.

BOOKS, REPORTS, &c, RECEIVED —

- A Handbook for Officers of the Indian Medical Service in Military Employ. By Capt H Boulton, M.S. (Pioneer Press Allahabad) Concomitant Dislocations of the Hip. By F Jackson Clarke, M.D. (Messrs Baillière, Tindall & Cox, 1910)
- The Morphology of the Parasite (Histoplasma Capsulatum) and the Lesions of Histoplasmosis. A Fatal Disease of Tropical America. By S T Darling, M.D.
- Sarcosporidiosis. S T Darling, M.D.
- Histoplasmosis. A Fatal Disease Resembling Kala-azar found among Natives of Tropical America. S T Darling, M.D.
- The Relapsing Fever of Panama. S T Darling, M.D.
- The Acidulous Waters of Bellin in Bohemia (Agents Stein, Forbes & Co Calcutta)
- The Stomach, Intestines and Pauterers. By Bosanquet and Clough. Edited by Canthle (Messrs John Ball Sons & Danielsson, 1909)
- Mosquito or Man. The Conquest of the Tropical World. By Sir Robert W Boyce, M.D. & F.R.S. (John Murray, London, 1909)
- XVIII Report of the Board of Health on Leprosy in New South Wales, 1908
- Annual Clinical Report of the Maternity Hospital, Madras, 1908
- Studies upon Leprosy. Report of the Treatment of six cases with Narsin. By Binnet-Hoff and Wayson, also
- Leprosy in the U.S. in 1909 (Brucknerhoff, Treasury Dept., U.S.America)
- Bulletins, Nos 51, 53, 54 & 55, Treasury Dept., U.S.America
- No 51 Chemical tests for Blood. Haste
- No 53 The Influence of certain Drugs upon the Toxicity of acetanilide. Haste
- No 54 The Fixing Power of Alkaloids on Volatile Acids and its application to the Estimation of Alkaloids with the Aid of the Nephelometer or by the Volhard Method. Livore
- No 55 Adrenalin and Adrenalin like Bodies. Schultz
- Catalogue of Books in the Office Library of the I.G.C.H., Bengal. Part I
- The Harveian Oration on Experimental Psychology and Hypnotism. G.H. Savage, M.D. (Messrs Henry Froude, London)
- Diseases of the Ear. R Lake, M.D. (Messrs Baillière, Tindall & Cox, 1910)
- Some Common Remedies. L Smith, M.D. (H.K. Lewis, Gower Street, 1910)
- Manual of Midwifery. Jellett 2nd Edition (Messrs Baillière, Tindall & Cox, 1910)
- MESSRS W.B. SANDERS CO
- A Text Book of Surgical Diagnosis. By Daniel N. Eisendrath, M.D., Professor of Surgery, College of Physicians and Surgeons, Chicago, New 2nd Edition. Octavo of 888 pages, with 571 original illustrations, 2s in color. Price 28/- net
- Treatment of Diseases of Children. By Charles Gilmore Kerley, M.D., Professor of Disease of Children, New York Polytechnic Medical School and Hospital. New 2nd Edition. Octavo, of 629 pages, illustrated. Cloth 21/- net
- Surgery. Its Principles and Practice. Vol 5. Just ready. Edited by W.W. Keen, M.D., LL.D., Prof. of Principles of Surgery and of Clinical Surgery, and J. Chalmers Da Costa, M.D., Professor of Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia. Octavo, of 1274 pages, with 500 illustrations, 4s in color. Cloth, 30/- net. Half morocco 34/- net
- Exercises in Education and Medicine. By R. List Mckenzie, M.D., Professor of Physical Education, University of Pennsylvania. Octavo of 400 pages with 346 illustrations. Cloth 15/- net
- Principles of Pharmacy. By Henry A. Armstrong, Ph.D., Lecturer of Pharmacy at Cleveland School of Pharmacy. Octavo, of 117 pages with 246 illustrations. Cloth 21/- net
- External Diseases of the Eye. 3rd Edition. By Dr O. Haab, of Zurich. Edited with additions by G.F. LeSchweinitz, M.D., Professor of Ophthalmology, University of Pennsylvania. 214 pages of text with 107 colored illustrations on 46 lithographic plates. Cloth, 1/- net
- Atlas and Epitome of Ophthalmoscopy and Ophthalmoscopic Diagnosis. 2nd Edition. By Dr O. Haab of Zurich. Edited with additions by G.F. LeSchweinitz, M.D., Professor of Ophthalmology, University of Pennsylvania. 10 pages of text with 112 colored figures. Cloth 18/- net
- Diet in Health and Disease. 3rd Edition. By Julius Friedenwald, M.D., Professor of Diseases of the Stomach, College of Physicians and Surgeons, Baltimore and John Ruhrab, M.D., Professor of Diseases of Children, College of Physicians and Surgeons, Baltimore. Octavo of 764 pages. Cloth, 18/- net
- Myomata of the Uterus. By Howard A. Kelly, M.D., Professor of Gynecologic Surgery, Johns Hopkins University and Thos S. Cullen, M.D., Asst. Lect. in Gynecology, Johns Hopkins University. Large octavo of 700 pages with 383 original illustrations, 19 in color. Cloth 3/- net
- Dorland's Illustrated Medical Dictionary. New 5th Edition. By W.A. Newman Dorland, M.D., Editor of Dorland's Pocket Medical Dictionary. Large octavo, of 876 pages with 291 illustrations, 119 in color. Flexible leather, 19/- net. (Thumb index added, 21/- net)
- A Text-Book of Physiology. 2nd Edition. By Wm H. Howell, Ph.D., M.D., Professor of Physiology in the Johns Hopkins University, Baltimore. Octavo, of 939 pages with 251 original illustrations many in color. Cloth, 18/- net

LETTERS, COMMUNICATIONS, &c, RECEIVED FROM —

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Original Articles.

NOTE ON CASES OF THE "EPIDEMIC DROPSY" TYPE OF BERI-BERI AT THE PRESIDENCY GENERAL HOSPITAL, CALCUTTA

By J W D MEGAW, B A, M.B.,
CAPTAIN, I M S,

First Surgeon, Presidency General Hospital

DURING the past few months, thirteen cases of "Epidemic Dropsy" were treated in the wards allotted to me in the General Hospital, Calcutta, and in view of the very great importance of this disease and of the mystery surrounding its nature and mode of origin, a short summary of the facts connected with these cases may be of interest.

So far as can be ascertained, no cases of the disease were treated in the hospital in recent years, so that the occurrence of thirteen cases in my wards alone within a few months would suggest that the affection has suddenly become prevalent among the classes from which the patients of the hospital are drawn.

Seasonal Prevalence—The cases occurred during the end of the rains and in the hot and damp months following the rains, the onset of the thirteen cases having been—1st August, 3rd September, 5th October, 5th November. No cases have been seen in December, January, or up till the time of writing in the middle of February.

Racial Incidence—Two of the patients were Europeans, two were Armenians and the remaining nine were Eurasians. Six of the patients were boarders in schools, the rest lived with their families or in lodgings. No case occurred among the paying patients in the hospital or among the patients of the classes which adopt strictly European customs in the matter of diet. The only common factor which could definitely be ascertained was the use of rice in the two mild cases from a school in Kuiseong the patients had been in the habit of taking rice as an important article of diet with one of the meals on three days of the week only. In all the other cases the patients had taken rice regularly with one or both of their principal meals as the chief article on the menu. It was not feasible to get reliable information as to the kind of rice used, the patients seldom knew, and when their parents or guardians were appealed to, they frequently suspected that reflections were being cast on the diet supplied to their children or wards and in some cases they obviously prevaricated regarding the food. The information regarding rice was obtained direct from the patients who were asked what they were in the habit of taking at each meal, and as they had not the slightest idea as to the reason for the question, their replies can safely be accepted.

Regarding mustard oil, which has fallen under suspicion as a cause of the disease, no information of a trustworthy nature could be obtained, but it would appear that this enters to a small extent into the dietary of most of the people of the classes from which the patients were drawn, chiefly in connection with the cooking of vegetables. The ages of the patients were 4, 7, 11, 13, 13, 14, 14, 14, 16, 16, 17, 23, 48. Two of the cases came from a school in Kuiseong, one from a school in Asansol, the remainder from Calcutta.

The most prominent symptoms were—Motor,—in all the cases there was some degree of general muscular weakness, the legs were specially affected, two of the patients were unable to walk, partly from weakness of the legs and partly from pain in the calves on attempting to walk. There was a tendency to foot drop in nearly all of the cases, four of the patients had a shuffling gait, two had steppage gait, the others did not show any marked change in gait, but in some the point could not be tested owing to the fear that heart failure might result from getting the patient to walk.

Sensory—There was nearly always some affection of sensation. In one there was a temporary complete loss of cutaneous sensibility from the knees downwards lasting for a few days, in six there was marked blunting of sensation to painful stimuli, especially in the legs, the patients being unable to distinguish between the touch of a finger and the prick of a pin. In one case there was marked hyperæsthesia at first with diminished sensibility later on. Tenderness of the calves to deep pressure was present in a definite degree in all the cases.

Pains in the calves described as of a drawing or dragging nature were complained of in six cases, pins and needles in two, and numbness and tingling of the fingers and toes in two.

Reflexes—In seven cases the knee jerks were absent throughout the whole period of observation, even after the patients had recovered to all intents and purposes, in one they were absent on admission, but returned after a few weeks, in one they were exaggerated at first, but diminished later, in two they were normal at first, but present in slight degree later, in one they were lessened throughout, and in one exaggerated all through the illness.

In two instances there were two members of a family affected simultaneously in both cases, one of the patients had loss of the knee jerks, while the other retained them. The same thing happened in the case of the two boys from the same school, so that evidently the state of the knee jerks is very variable even in cases of a similar type.

Vascular System—The heart was appreciably affected in all but one of the patients, nearly all had an apical systolic bruit at the height of the illness, there was also frequently a basal systolic bruit and some displacement outwards of the

apex beat The symptoms referable to the heart were dyspnoea of slight or moderate degree in nine cases, severe paroxysmal dyspnoea occurring without warning in one other case, a boy of seven years of age, in one of whose attacks there was acute precordial pain, the pulse was 170, the respirations 60—70 per minute, and for a few hours the patient's condition was critical.

Palpitation or precordial oppression was complained of in five cases and fainting attacks in two others.

The blood was examined in six of the most marked cases by Dr. S. N. Ghose, L.M.S., the red cells were from two and-a-half to five millions, the hæmoglobin from 45 to 80 per cent, the rule being a moderate reduction in the red cells and a more marked reduction in the hæmoglobin. The leucocyte count showed an increase, both total and relative, in the lymphocytes and an increase in the eosinophiles in most of the cases. The child of four had a total leucocyte count of 18,000, none of the other cases showed any considerable degree of leucocytosis.

Gastro-Intestinal—Epigastric pains at the onset were mentioned in six of the cases, the others did not show any marked affection of the gastro-intestinal system.

Renal—None of the cases had albumin in the urine or any other gross abnormality in the excretion of the urine except that in some cases there was a diminution in the quantity, but not more than would be expected from the degree of cardiac affection.

Cutaneous System—Œdema of the feet and legs was noticed in all but one of the cases, this subsided in every case after a few days' rest in bed. A diffuse erythema of the skin, probably vaso-motor in origin, was seen in seven cases, this was most marked on the inside of the thighs and over the front of the legs. It generally persisted for one or two weeks after admission.

Fever—A slight degree of fever was seen in four cases in three it lasted up till two or three weeks from the onset, in one it persisted in a variable degree for a month, the fever was intermittent in type rising to 100°—101°F.

Ocular Symptoms—My attention was called to this feature by Lt.-Col. Maynard, I.M.S., who is making a special enquiry into the subject, but only two of the patients had any appreciable disturbance of vision. One had dimness of vision in one eye with a slight increase of ocular tension from the third till the fifth week of his illness. Another complained that after the end of the second week of his illness he was no longer able to tell the time by the ward clock, this trouble passed off in about a fortnight.

Course of the disease—Most of the patients were admitted within a week or ten days of the onset, and in all the cases there was a marked amelioration of the symptoms within from three to ten days after admission. In two of the mildest cases practically complete recovery took

place within three weeks, but the average duration was from six weeks to two months, one case lasted three months. None of the cases died, but in one fatal case which I saw in consultation with my colleague, Captain Foster, I.M.S., a partial *post-mortem* examination was obtained. This was a Eurasian female, aged 30, who had been suffering for three months at home and sought admission to the hospital on account of alarming cardiac symptoms. Her condition was so bad that only a few points could be made out but her history left little doubt as to the diagnosis, and she had marked tenderness of the calves with loss of the knee jerks combined with signs of cardiac dilatation. There was a marked degree of hydropericardium and hydrothorax, the heart was enlarged and dilated, especially the right ventricle which showed moderate hypertrophy with marked dilatation. There was also a definite degree of congestion of the mucous membrane of the duodenum.

Treatment—Absolute rest in bed during the early stages with a varied diet containing a large proportion of proteid constituted the general line of treatment. Salines and iron, and where indicated digitalis and strychnine were employed. In convalescence massage was found useful.

Seven cases were treated by my colleague, Captain Foster, in his wards in the hospital, and his experience as to the symptoms and general conditions of occurrence of the cases coincides closely with mine.

During the recent epidemic in Calcutta it was stated by a prominent authority on public health that the disease was a specific infection which had an incubation period of a few days. Regarding this point the following experiment which was carried out on October 9th is of some interest. A typical case of the disease was in hospital at the time, he had been ill only about a week, his knee jerks were absent, he had the typical rash, he was getting an evening rise of temperature to 100° and there were eight other members of this family affected at the same time, the case was thus an exceptionally favourable one for experimentation. Three ccs of his blood were drawn off and the clot allowed to separate. With the serum thus obtained I inoculated myself subcutaneously, up till the present date no symptom of any kind has followed. This experiment is evidence against there being any blood infection of a kind directly transmissible from man to man by inoculation. Against the disease being an infection is also the fact that all the cases were treated in the open wards without any attempt at segregation being considered necessary, and that no case of infection occurred among the other patients. As to the nature of the disease, the symptoms obviously correspond closely to those described in the classical accounts of *ber-ber*. Reference to Scheube's description of this disease will show

that there is not a single symptom which has been observed in the General Hospital cases which is not also mentioned in Scheube's account. The chief argument against the disease being a form of beri-beri is that some observers have not found any marked degree of peripheral neuritis in the cases of epidemic dropsy seen by them. My experience of epidemic dropsy among native patients is very small, but in the cases seen among Europeans and Eurasians peripheral neuritis has certainly been invariably a marked feature of the disease. All my cases have been seen at some stage of their illness by competent independent observers who have been invited to examine the patients for themselves, so that the element of unconscious bias can be practically eliminated. That there is marked difference in type between epidemic dropsy and beri-beri as seen among Chinese patients in Calcutta as an endemic disease is quite obvious to anyone who has seen both classes of cases, but that the difference is such as to justify us in considering the disease to be essentially different does not appear to have been shown by any of the writers on the subject. In dealing with a disease of such a protean type as beri-beri it is only natural that in outbreaks occurring among races whose modes of life are different there should be marked variations, and a reference to Scheube's account will, I think, leave little room for doubt that the cases seen at the General Hospital were really beri-beri. If it be admitted that there is strong reason for thinking that epidemic dropsy is closely related to, if not identical with, beri-beri, the next point of importance is to enquire whether any of the ætiological factors which have been established in connection with beri-beri are likely to obtain in the case of epidemic dropsy. Braddon, Fraser and Stanton appear to have shown conclusively that beri-beri in the Malay Peninsula is associated with the use of rice which has been prepared in a special way, viz., by husking while in the raw condition, and that the people who use rice which has been parboiled before husking entirely escape the disease. It is quite possible that the disease may be caused by the absorption of a poison which develops in the rice in consequence of the action of a mould or allied vegetable parasite. An excellent summary of the work done in the Malay States appeared in the May number of the *Indian Medical Gazette* as an editorial article, but it would appear that the significance of the work has not been duly appreciated in India.

The conditions under which epidemic dropsy occurs among European patients in Calcutta are very significant in this connection. All the cases were in persons who had been in the habit of consuming considerable quantities of rice, and on the whole the severity of the cases seemed to be proportional to the amount of rice taken. There is the remarkable fact that among Europeans who do not take rice except in very small quantities epidemic dropsy is unknown,

while among those who take a moderate amount the disease occasionally appears, usually in a mild form and among that part of the Indian population which lives chiefly on rice the disease is common in a severe form.

Another point of great importance is that the disease is much more prevalent in the hot and damp months of the year when all kinds of lowly organized vegetable parasites are specially abundant. In this respect the disease also agrees with beri-beri.

The tendency towards recovery within a short time after the patient has been placed on a liberal diet free from rice is strongly in favour of the dietetic theory.

It is an interesting fact that the disease is unknown in the Presidency Jail, close by, where the rice is stored with great care, a certain amount of lime being mixed with it so that there is little opportunity for moulds or similar parasitic growth to develop on it.

The close relationship between the disease and alcoholic neuritis is interesting, in alcoholic neuritis the poison is generally taken over a long period and results in neuritis; the poison is produced by the action of yeast on a carbohydrate and it is not at all unlikely that the poison which causes epidemic dropsy may be the result of an allied fermentative process.

Against the mustard oil theory of the causation is the seasonal prevalence, it is not at all likely that mustard oil is less adulterated in the cold weather than in the rains, and further it would be most remarkable that the disease should have increased so greatly in recent times in spite of the population being fully alive to the supposed danger of using impure mustard oil.

The preceding facts and the inferences which are capable of being drawn from them appear to suggest the desirability of making a serious attempt to protect the rice supply of Calcutta from the changes of a fermentative nature which are possibly the cause of "epidemic dropsy."

The preparation of the rice by parboiling before husking is one of the methods which have been found effective, and the storing the rice in the manner adopted at the Presidency Jail appears also to have proved effective in spite of the fact that the rice used is of the Burmah variety. The method adopted is to mix a small proportion of powdered slaked lime with the rice, this is separated before use by winnowing and then washing the rice. It appears that none of the prisoners raise any objection to the rice preserved in this manner.

It is possible that the rapid increase in the disease in recent years may be due to the godowns of Calcutta having become infected with a particular form of fungus or related parasite, such low forms of vegetable growth being specially likely to become widespread under favourable conditions, as for instance in the

case of the potato blight in Europe where the disease spread rapidly over large tracts of country

It may seem unjustifiable to base a theory as to the nature and causation of the disease on so small a number of cases, especially when there are able investigators at work in tracing the causes of the outbreak, but it appeared to me that there is sufficient presumptive evidence in favour of the suggestions made in this note to make them worthy of serious consideration by the profession in Calcutta and the other places where the disease occurs. There is the further fact that the season when the disease is likely to appear with renewed intensity is at hand, and it is not likely that Captain Greig, I.M.S., and the other workers on the subject will be in a position to publish their findings in time to allow of precautions to be taken against the outbreak which may be expected during the coming season.

The final verdict as to the nature of the disease will doubtless depend on experimental work, possibly in the nature of experiments in feeding young animals on different kinds of rice, but it appears to me that so simple and so obvious an experiment as the preparation and storing of the rice supply of the population under conditions which have already been attended with such good results is one that should be undertaken without waiting for the results of the investigations which are in progress.

GLEANINGS FROM THE CALCUTTA POST MORTEM RECORDS *

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(Continued from page 90)

III—ARTERIO-SCLEROSIS

A STRIKING feature of the Calcutta *post-mortem* series is the comparatively early period of life at which the great majority of the deaths took place, in spite of the fact that very few children are contained in the series. Thus, although but 27 per cent were under 11 years of age, yet 80 per cent of the Hindus and 62 per cent of the Mahomedans were not above 40 years of age, while 52 per cent of the Hindus and 44 per cent of the Mahomedans were not over 30. Further, only 6 per cent were from 51 to 60, and but 14 per cent over 60 years. These remarkably early deaths are not by any means fully accounted for by the prevalence of typical tropical disease, such as cholera, dysentery and tropical fevers. It will, therefore, be of considerable interest to enquire into the age incidence of arterial degenerations, which play

such a large part in the death-rate of temperate countries, as is illustrated by the proverbial saying, that a man is as old as his arteries. Fortunately both my immediate predecessors in the pathology professorship at the Calcutta Medical College Hospital took a great interest in this subject, while it early attracted my attention, so that ample data exist in the *post-mortem* registers for investigating this question. I have, therefore, analysed 1,000 *post-mortems* on natives of India in the times of the late Major J. F. Evans and Lt.-Colonel F. P. Druy, I.M.S., and myself with the results which are shown in Table VI—

TABLE VI

Part I—Percentage of slight and marked Atheroma among natives of India in different decades

Age	Normal	Slight	Marked	Granular kidneys in Atheroma cases
Up to 10 years	100	0 0	0 0	0 0
11 to 20 "	93 3	6 7	0 0	0 0
21 to 30 "	81 3	16 2	2 5	9 8
31 to 40 "	70 1	24 2	5 7	16 8
41 to 50 "	52 6	28 0	19 4	16 8
51 to 60 "	40 6	24 8	34 8	26 8
Over 60 "	38 1	33 3	28 6	69 2
Up to 40 "	79 4	13 4	3 2	13 1
Over 40 "	47 5	27 4	25 1	26 1
Total	72 6	19 4	8 0	18 5

TABLE VII

Part II—Sex and Race Incidence of Atheroma

	Males	Females	Hindus	Mahomedans
Slight atheroma	21 4	13 0	19 5	19 5
Marked atheroma	7 4	9 2	7 3	9 7 5
Total	28 8	22 2	26 8	29 2
Up to 40 years of age	22 2	13 8	20 2	21 1
Over 40 do	52 0	57 5	52 5	50 9

In working out the above table the percentages have been calculated on the actual number of subjects in each decade in the 1,040 *post-mortems* analysed, all being natives of India, including a few Native Christians. Part I illustrates the steady increase in the prevalence of atheroma in each decade of life after the first, so that above the age of 60 atheroma was recorded in 62 per cent of the subjects. Even these figures are doubtless slightly an underestimate, at least as regards the lesser degrees of the degenerative process, for in a minority of the cases no details of the cardiac conditions were recorded and atheroma was probably present in some of these although not noted. As, however, in a large majority of the series the actual state of the aorta was noted, while marked degrees of the change could not well be overlooked, the figures may safely be relied on to illustrate the general incidence of arterial degeneration in natives of India. It should be noted that the

* Being the continuation of a paper read before the Medical Section of the Asiatic Society, Bengal at the December meeting, 1909

column relating to the incidence of granular disease of the kidney shows the percentage of the cases actually showing atheroma in which renal emoliosis was found, and not the proportion in the total subjects. Slight degrees of granular are included, for the general arterial pressure is increased in the early stages of this affection, which may, therefore, be expected to predispose to atheroma.

The most important point brought out by this analysis is the sudden and great increase of marked arterial degeneration as soon as the age of 40 years is exceeded. Between 31 and 40 only 5.7 per cent of the subjects showed more than a slight degree of arterial degeneration, but in the following decade the percentage rises at a bound to 19.4 per cent, or nearly four times as much, while between 51 and 60 the rate rises and continues to increase rapidly to reach 34.8 per cent. This important fact is well illustrated by the figures before and after 40 years of age shown in the lowest two lines of Part I of Table VI. Up to 40 marked aortic atheroma was only found in 3.3 per cent of the subjects, while over 40 the rate is no less than 25 per cent, or one-fourth of the total cases. Among a small number of Europeans marked atheroma was not common until over 50 years of age.

Dr F. W. Mott found atheroma in nearly one-fourth of 1,600 *post-mortems* at Charing Cross hospital, which is a little less than in the present Calcutta series. The age incidence is not mentioned by him, but there were probably a much larger proportion of subjects over the age of forty than in the Calcutta records. If this was the case, then it is clear that there was a somewhat larger proportion of atheroma in Calcutta at a younger age than in England, and this early arterial degeneration in natives of India is probably not an unimportant factor in producing the very low average age of death in Calcutta hospitals.

The sex incidence of atheroma in natives of India is shown in Part II of Table VI. The total cases in males was 28.8 per cent against 22.2 per cent in females. There is thus only a slight preponderance in males, much less so than in Europe, for Mott found the proportion of males to females nearly as 3 to 1 at the Charing Cross hospital. Moreover, the lesser incidence in Indian females is confined to the slighter degrees of the arterial degeneration and to below the age of 41, both the more marked degrees of atheroma and the incidence over 40 years of age being actually higher in females than in males. Atheroma has then a much more marked preponderance in men over women in Europe than in Calcutta. This may be partly accounted for by many of the Indian subjects being coolie women who do manual labour, although commonly of a lighter nature than the men. The age incidence of the total females in the *post-mortem* records is even lower than that of the males, only 17.7 per cent

of the women having been over 40 years of age at the time of their death, which is once more in accordance with greater frequency of marked atheroma among them, as compared with the men.

The RACE incidence for Hindus and Mahomedans respectively is also shown in Table VI. The difference is very slight, and limited to the more marked degree of atheroma being a little more prevalent among the Mahomedans. They, however, are more long lived than the Hindus, 27.8 per cent of the Mahomedan subjects having been over 40 years of age.

Lastly, we have to deal with the frequency of GRANULAR DISEASE OF THE KIDNEY in association with atheroma, which is shown in Table VI. Including slight degrees of contraction of the kidneys, it was found in no less than 18.5 per cent of the total number of atheroma cases, while it was just twice as frequent over the age of 40 years as it was up to that time. There was a marked increase of renal affection over the age of 30 and again over 50, while among the very few subjects of upwards of 60 years of age some degree of renal contraction was found in no less than 69 per cent of atheromatous subjects. Among 1,000 consecutive *post-mortems* analysed for kidney disease some degree of contraction was found in 11 per cent, in over two-thirds of which it was slight in extent. This figure is considerably lower than in the atheroma series, so that granular kidney appears to predispose to atheroma, although hardly to the extent which might have been expected, judging by European experience on the subject. I have not yet worked out the exact age incidence of granular kidney, but it certainly increases with each decade parallel to that of atheroma.

ANEURISMS

Norman Chevers in his *Commentary on Diseases in India* states that aneurisms are not common among natives of this country. In order to further investigate the subject I have examined the *post-mortem* records of the Calcutta Medical College hospital for 37 years, as well as the contents of the museum. The records showed only 30 cases of aneurism among 5,900 subjects, including the surgical *post-mortem*, making 0.5 per cent. The race incidence is shown in Table VII —

TABLE VII
Race Incidence of Aneurism in India

Race	Aneurisms	Proportion	Subjects	Race Incidence
Europeans	9	31.1	70	2.2
Hindus	11	37.9	67.4	0.28
Mahomedans	8	27.6	21.8	0.62
Native Christians	1	3.4	3.8	0.45
Total Natives	20	68.9	93.0	0.36

The third column shows the proportion of different races in the *post-mortem* series worked out from 1,040 cases in different decades. The most striking feature brought out is the very high incidence among Europeans as compared with natives of India, namely, 22 per cent in the former against only 0.36 among the latter. Further, the disease was twice as frequent among Mahomedans as among Hindus in proportion to their relative numbers.

The museum of the Calcutta Medical College contains a fine collection of aneurisms, the descriptions of many of which note the race and age of the subject. On analysing them (those included in the above table being omitted), it was found that 21 had been obtained from Europeans, 18 from natives of India and one from a Chinaman. These figures confirm the much greater frequency of aneurisms among Europeans as compared with natives of India, the relative numbers living in the country of each being taken into account.

Age Incidence—The ages of all the *post-mortem* and museum series in which it is recorded are shown in Table VIII for both Europeans and Natives—

TABLE VIII
Age Incidence of Aneurisms

	To 30	31—40	41—50	Over 50	Up to 40	Over 40
Europeans	2	7	8	1	9	9
Natives	8	13	3	3	21	6

It appears from these figures that in Europeans aneurisms are most commonly met with between the ages of 31 and 50, and are equally frequent above and below the age of 40. In natives, on the other hand, the maximum prevalence

European subjects over 40 as of natives in proportion to their total numbers, but even allowing for this, there is a marked preponderance of the higher ages among Europeans suffering from aneurisms.

Arteries Affected—The 125 cases in the museum and *post-mortem* series in Calcutta are shown in Table IX classed according to the artery affected. The frequency and position of the ruptures which occurred are also given.

Table IX—Illustrates the well-known frequency of aneurisms of the ascending aorta and their common rupture into the pericardium. The rarer termination by bursting into the left auricle and the pulmonary artery respectively are also of interest. The large proportion of aneurisms of the descending thoracic aorta and of the abdominal aorta is striking. It is curious that no less than 5 out of the 18 abdominal aortic aneurisms ruptured into the right pleura and three more into the left pleural cavity. One coeliac aneurism burst directly into the abdominal peritoneal cavity, a rare occurrence. On the other hand, innominate aneurisms rarely ruptured, pressure effects, especially on the trachea, having been the common cause of death.

There were a number of very interesting cases in the series. In several instances more than one aneurism was present, while in one subject three dilatations of the thoracic aorta were found. In another case an aneurism of the abdominal aorta ruptured behind the peritoneum, producing a large effusion around the kidney, and a few days later sudden death was caused by a second separate rupture directly into the left pleura.

Sex—Of those cases in which the sex was recorded, which include all the *post-mortem* and many of the museum series, all were in men.

TABLE IX
Classification of Aneurisms and the Sites of their Rupture

	Total cases	Percentage	SITE OF RUPTURE											Total	Percentage
			Pericardium	Left pleura	Right pleura	Trachea	Bronchi	Esophagus	Lung	Peritoneum	Left auricle	Pulmonary artery	Retro peritoneally		
Ascending aorta	38	30.4	10			5	3	1	1		1	1		12	31.6
Transverse "	23	17.6												7	32.6
Descending aorta	16	12.8		3				2						6	37.5
Thoracic aorta	11	8.8			1		4	1						8	72.7
Abdominal "	18	14.4		3	5					1				10	55.5
Innominate	9	7.2				2								2	22.2
Other arteries	11	8.8												0	0.0
Total	125		10	7	6	4	7	4	3	1	1	1	2	46	36.8

is between 21 and 40, only 6 out of 27 cases having been over 40 years of age. I find, however, that there were about twice as many

except two. Both the exceptions were abdominal aneurisms in Mahomedan women, aged 30 and 39 respectively and both terminated by

rupturing In one there was also a smaller dilatation of the descending thoracic aorta

CONDITIONS INFLUENCING THE PREVALENCE OF ANEURISMS IN INDIA

Strains—Natives of India cannot be said to be fond of over-exercising themselves, and commonly carry out even manual labour in a very leisurely manner In those cases in which a clinical history is available, strains are very rarely mentioned as preceding the appearance of symptoms of aneurism in natives, although they figure fairly prominently in European cases, especially among sailors during emergencies The nature of the work of natives of India, therefore, does not predispose them to suffer from aneurism

Syphilis—On the other hand, syphilis is appallingly common among the class of natives who come to hospitals In the absence of clinical histories of most of the above cases it is impossible to accurately estimate the frequency of the disease in this series, but among those in which its presence or absence was recorded, it had been noted in by far the majority, while in several more of the *post-mortems* other indications of syphilitic disease were found, chiefly gummata in the liver There is no doubt that this predisposing cause is very common among natives of India, and might have been expected to have shown its effect in a marked prevalence of aneurisms among them, instead of the reverse being the case, as already shown

Atheroma—The fact that four-fifths of the aneurisms in natives occurred at an age not exceeding 40 years, and that marked degenerative arterial changes do not become common until over 40 indicates that it is not the senile form of atheroma which is associated with the formation of aneurism in Calcutta On the other hand, syphilis is most prevalent during the aneurism age of native This is in agreement with the general experience that local arterial dilatation is associated with the earlier syphilitic disease of the bloodvessels, and thus confirms the conclusion already arrived at that syphilis is the great cause of aneurisms in tropical India The comparative rarity of aneurism in natives as compared with Europeans in India still remains to be explained

Low blood pressure in Natives of India and the Rarity of Aneurisms among them—When first working at blood pressure in Choleia nearly four years ago, I was struck by the fact that even during convalescence it remained below the European normal standard Captain D McCay, R.M.S., recently found the blood pressure in healthy Bengali students to vary between 83 and 115 mm, while the average of twenty-five observations was only 102 He also found it to be slightly higher in meat-eating Mahomedans than among Hindus on a diet of rice and fish In the working class of natives the blood pressure is somewhat higher than the above

figure, still it remains considerably below the average of Europeans who eat large amounts of animal food This important difference appears to me to afford a simple explanation of the very low prevalence of aneurism in natives as compared with Europeans in India, in spite of their early arterial degeneration and frequent syphilitic taint It also explains the somewhat higher rate among Mahomedans than in Hindus Since coming to this conclusion I have been able to estimate the blood pressure in two cases of aneurism in natives, and in both it was above their average rate If further observations confirm this relationship, the above explanation will be further strengthened.

CONCLUSIONS.

As this paper is necessarily very lengthy owing to the large amount of material on which it is based, it will be well to summarise the principal conclusions arrived at as follows—

1 The incidence of the different forms of heart disease in India differs widely from that of temperate climates owing to the almost complete or entire absence of rheumatic and scarlet fevers in tropical India

2 Rheumatic pericarditis is of doubtful occurrence in Calcutta where this affection is most commonly secondary to pneumococcal infection of the lungs (lobar pneumonia)

3 Rheumatic endocarditis is of doubtful occurrence in Calcutta among natives born and bred in India Malignant endocarditis, however, is not very rare, and is most frequently pneumococcal in origin It most commonly attacks the aortic valve

4 As a result of the extreme rarity of acute rheumatism the incidence of organic disease on the valves of the heart differs materially from that met with in temperate climates Thus the aortic valve is far more frequently diseased than the mitral cusps

5 Organic disease of the mitral valve leading to either regurgitation or stenosis is rare, but aortic disease is relatively and actually very common

6 The age incidence of both mitral and aortic disease is low and closely similar, indicating a common cause for both affections The most likely agency is syphilitic disease

7 Arterial degeneration occurs early in natives of India, but the more marked degrees do not become common until over the age of 40 It is but slightly commoner in males than in females up to the age of 40 only

8 Aneurisms are rare in natives as compared with Europeans in India, in spite of syphilis being very common among the former They most commonly affect the aorta, and but rarely the more distal arteries The most likely explanation of the comparative rarity of aneurism in natives is their low average blood pressure as compared with Europeans, due to a mainly vegetarian diet

A CASE OF STAPHYLOCOCCAL CEREBRO-SPINAL MENINGITIS, TREATED BY SPECIFIC VACCINATION—RECOVERY

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and

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A EUROPEAN male child, aged $3\frac{1}{2}$ years, was admitted to the Lady Curzon Hospital, Bangalore, on 18th October 1909, suffering with high fever and "head symptoms." His mother stated that three weeks before admission he had an attack of "influenza," being ill with fever for five days, with running at the nose and eyes. The present attack began three days before admission with high fever, convulsions and vomiting. He became unconscious the day after the fever started and had remained so ever since. The night before admission he was given a purgative and fever mixture. As a result of this the temperature which had been 103.6° fell to 100° , but the vomiting continued, so he was brought to hospital.

The note made on his admission to hospital is as follows.—Face flushed, tongue dry and furred. Heart and lungs normal. Spleen and liver not enlarged. Squinting and contracted pupils. Twitchings of hands, arms and legs which the mother states have continued since the onset of the illness. Quite unconscious. Kernig's sign is present. No marked retraction of the head.

At the request of the Lady Doctor one of us (R F S) saw him on 20th October 1909. He then had a temperature of 103.4° , a highly flushed face, was quite unconscious and lay on his left side in a state of general flexion. Pulse 140, occasionally intermittent. Respirations 36. He occasionally cried out, and was extremely irritable. There was a history of a convulsive fit on the night before he was seen, but neither the nurse nor the mother could give a very good account of it. The twitchings were described as confined to the face and hands and there was "folding of the thumbs into the palms of the hands." The pupils were irregular, the right being the larger, and there was outward squint of the right eye. There was marked, though not excessive, retraction of the head. An examination of the chest showed nothing abnormal. The abdomen was retracted but not tender. There was very marked hyperæsthesia along the whole length of the spinal column. The cerebral tache was present, and Kernig's sign was marked. A faint macular rash was seen on the sides of the chest and abdomen, and

also on the neck. Owing to the restlessness and irritability, it was impossible to examine the optic discs, the ears or the nose, but there was no history of chronic discharge from the two last, and no reason to suppose that infection of the meninges had occurred through either. He had been given a routine dose of santonine with a purge, but had passed no worms. The stools and urine were passed in his bed.

There was no family history of phthisis or tubercular affections, but the father had been treated by one of us (R F S) for tertiary syphilis, and had died of syphilitic disease of the aorta two years ago.

The sudden onset, the rash and the general symptoms suggested a diagnosis of cerebro-spinal meningitis, due to the diplococcus of Weichselbamm. As routine, however, the blood was examined for malaria and by Widal's test, both with negative result, and a lumbar puncture was made, under the most careful aseptic precautions, agar tubes being inoculated with the cerebro-spinal fluid flowing directly from the trocar. The fluid, which flowed fairly rapidly, but not under any great pressure, was also collected for chemical examination, $1\frac{1}{2}$ ounces being removed in all. The agar tubes were sent to the Brigade laboratory and examined (by A J H R) on 21st October 1909. On 22nd October 1909, it was reported that the growth was staphylococcus pyogenes aureus, but, fearing contamination, another lumbar puncture, under the most strictly aseptic precautions, was made on 23rd October 1909. By error the nurse forwarded the needles and trocars, which had been boiled for half an hour, to the ward immersed in 1 in 20 carbolic solution, instead of in sterile water. This mistake was not discovered till the agar tubes had been inoculated with the cerebro-spinal fluid. In spite of this it was reported (by A J H R) that a very virulent growth of staphylococci had taken place. A culture made from the peripheral blood gave also a similar growth.

The fluid removed at the first puncture was not turbid, at the second it was slightly so. On both occasions no albumen was found in it, and no sugar. Very few cells were seen on microscopic examination of the stained sediment after centrifugalization, and they were mostly lymphocytes.

It was decided that the case was one of staphylococcal meningitis, and it was thought advisable to use a vaccine prepared from the staphylococci grown from the spinal fluid.

The ward-note for 24th October 1909 says "Is much more irritable to-day. Lies curled up on right side. Retraction of head. Has a rose coloured macular rash, not papular, disappearing on pressure, over the chest, abdomen, back, face, arms and legs. Tongue is red and raw looking." He was also seen (by R F S) during the day, who noted that there was ptosis

A CASE OF STAPHYLOCOCCAL CEREBRO SPINAL MENINGITIS, TREATED BY SPECIFIC VACCINATION—RECOVERY

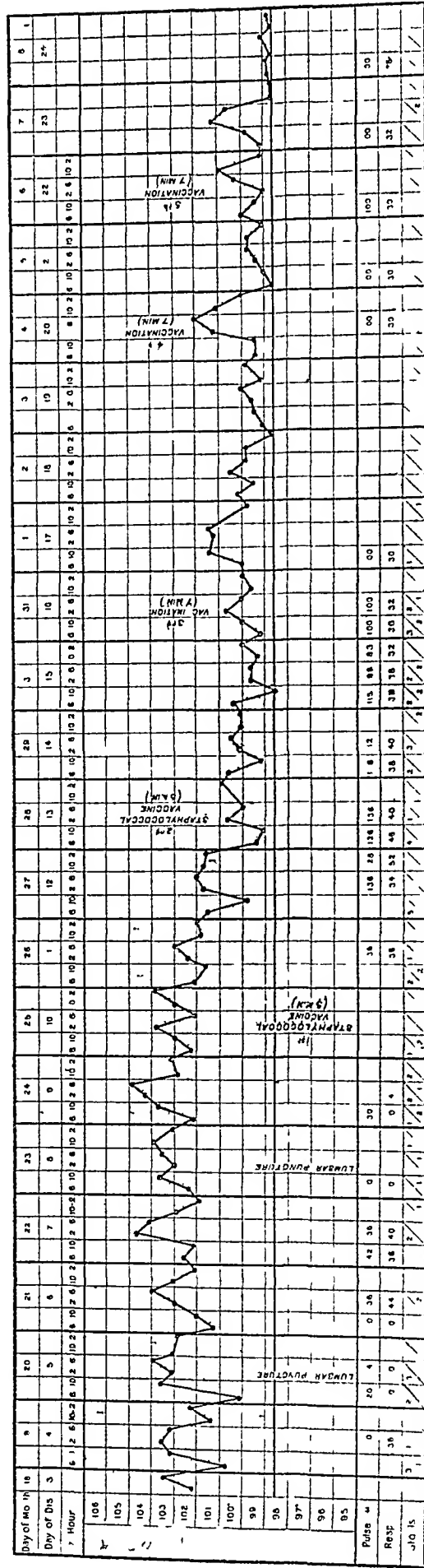
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of the right eyelid, and that the restlessness and irritability was more marked. The urine was collected and tested, showing no albumen. The temperature reached 104.8° during this day, the pulse being 130 and respirations 40.

25th October 1909.—A leucocyte count showed 18,400 and an agar tube inoculated with peripheral blood was reported to grow staphylococcus abundantly. The first injection of an antistaphylococcal vaccine (prepared by A. J. H. R.) was given to-day, the general condition being much the same.

On the 26th, 27th and 28th the condition remained much the same, though the rash faded away and the irritability changed for a comatose condition. The temperature gradually fell to 99° on 28th. The pulse varied between 136 and 126 and became markedly intermittent, the respirations being from 36 to 52. The pupils both became dilated and fixed, and an examination of the optic discs (by R. F. S.) showed well-marked optic neuritis. The child was obviously blind, and it was judged, by his indifference to noises, that he was deaf too. The second injection of anti-staphylococcal vaccine was given on 28th October 1909 after which there was a marked rigor.

The coma deepened during the next day, the temperature remaining at about 100° . The pulse intermitted every 5th beat. The temperature fell to normal at 10 o'clock on the morning of 30th October 1909, rising again to 100° in the evening.

The third injection of vaccine was given on 31st October 1909.

From this time the child made an uninterrupted recovery. His temperature during the next week varied between normal and 102° . The deafness, fixity of pupils and ptosis remained, but the coma became less marked, being replaced by irritability and crying. Throughout he was able to take liquid nourishment, but he emaciated to a marked degree.

He had a fourth and fifth injection of the vaccine on 4th November 1909 and on 6th November 1909. On 7th November 1909 the temperature came down to normal in the evening and remained normal during the rest of his stay in hospital. On 9th November 1909 it was noted that he took notice of noises and could certainly see, as he tried to seize it, a bright object waved in front of him. He was also less irritable, but did not recognise any one, and did not use any words in crying.

On 15th November 1909 he was greatly improved. He had recognised and called for his ayah, and when laid down he continually called out the word "carry" and was not appeased till lifted out of his cot and nursed. This was the first indication that he might possibly recover without impairment of intellect, about

which a very guarded prognosis had been given. Kernig's sign was now not present, his pulse was regular—98. He took his nourishment well, with no vomiting or diarrhoea, and could hold, and play with toys and other articles given to him. He could not stand or sit up by himself. On 25th November 1909, he was sitting up and playing with his toys, and fed himself with a spoon. He recognised his mother and talked naturally and sensibly, but he could not stand or walk, though he could move his legs. He had still a squint.

The weakness of the legs gradually passed off and when discharged on 7th December 1909 he was walking about the ward, and the only noticeable effects of his illness were thinness, weakness and occasional tremor of his limbs and the squint described above.

Bacteriology

The first agar tubes inoculated at the end of 24 hours gave such a strong growth of staphylococcus aureus that it was thought a skin infection had taken place. Another puncture was decided on, and when this also gave a pure growth of staphylococcus aureus, as well as a culture made from the peripheral blood, we decided that it was worth while making a vaccine from the patient's own strain of staphylococcus. A 24 hours' culture was used and an emulsion of it was made in sterile normal salt solution calculated to give a count of approximately 500 millions per c.c. The cocci were killed not by heat, but by adding $\frac{1}{2}$ per cent pure carbolic acid to the emulsion. At the end of 24 hours an agar tube was inoculated from the vaccine, but the tube remained sterile at the end of 24 hours' incubation. The same morning the patient received his first dose of the vaccine, five minims, i.e., approximately 250 millions staphylococci.

Remarks—We think there can be little doubt that the injections of dead staphylococci marked by increased thermolabile and thermostable opsonin in this case. No estimations of the opsonic index were made, but that the phagocytic action towards staphylococci was raised, was amply proved by the reduction of symptoms and the disappearance of the cocci from the blood. We were fortunate in having a bacteriological laboratory at hand, so that no time was wasted in the preparation of an autochthonous vaccine and its exhibition in large and frequently repeated doses. The dose of 250,000,000 cocci, quickly raised to about 420,000,000, was considered to be somewhat heroic. The happy result encourages us to try large doses at once in future similar infections which we may have to treat.

We are greatly indebted to Miss L. Browne, M.D., the Lady Doctor of the Hospital, for the clinical account of the case.

EXTRACTS FROM MEDICAL HISTORY SHEETS, 69TH PUNJABIS

By F C TAYLOR,

CAPTAIN, I.M.S.,

Medical Officer, 69th Punjabis

THE following cases are of interest, in that they shew the existence of a prolonged fever, not definitely identified with Malta fever by blood examinations

The cases began to come in in the summer of 1907 when the regiment was at Dera Ismail Khan, and held outposts at Jandola, Jam and Jatta on the Waziristan border, and it was from these outposts or from manœuvre camps in their vicinity that the disease first made its appearance. The last case only joined the regiment in Peshawar to which place they came in January 1909. Owing to constant changes, some sheets and records have been lost, but of those left there are sufficient to show the character of the disease

The fever varied little in type the men never appeared dangerously ill their tongues, furred at first, soon cleaned the appetite returned early they sat up in bed and would get up and walk about, there was no extreme wasting or anæmia, and the spleen was rarely more than just palpable. Severe body or joint pains were not marked during the fever

The blood of all these patients has been examined in either the Lahore Divisional Laboratory, in Kasauli, or in the Peshawar Divisional Laboratory. In no case was any positive result obtained to either Malta or the paratyphoids

The only three positive reactions were in the Dera Ismail Khan Laboratory, and the results, I was informed by the officer who did them, were unreliable

Charts of three cases are attached to shew the type of fever, and below are given extracts from the medical history sheets of nine cases

CASE I M K THREE ADMISSIONS

First Admission—August 1907 'Remittent fever,' 99 days, sent on two months' sick leave

Had much diarrhoea and consequent weakness

Second admission—January 1908 'Sciatica,' 14 days, discharged cured

Third admission—February 1908 'Orchitis,' 8 days, discharged cured

This man is still with the regiment, and has had no further admissions

CASE II M F FOUR ADMISSIONS

First admission—September 1907 'Ague,' 42 days, sent on two months' sick leave. Severe, no enlarged spleen, relapse after 8 days, normal temperature

Second admission—December 1907 'Remittent fever,' 25 days, sent on two months' sick leave

His fever had continued during most of his leave, relapsing 15 days after he left hospital

Third admission—May 1908 'Ague,' 29 days, allowed to rejoin and become sick attendant to his brother, case III, with similar disease

Fourth admission—August 1908 'Synovitis,' 20 days, discharged cured

This man is still with the regiment, and has had no further admission

CASE III S M THE BROTHER OF CASE II

One admission—April 1908 'Malta fever,' 61 days, sent on two months' sick leave

No admissions since, except for 'ulcer'

The Widal reaction was obtained in Dera Ismail Khan

CASE IV P FOUR ADMISSIONS

First admission—April 1908 'Synovitis,' 4 days, discharged cured

Fluid in right knee-joint

Second admission—April 1908 Within two days of last discharge 'Pyrexia,' 45 days, sent on two months' sick leave

Third admission—September 1908 'Pyrexia,' 38 days, discharged cured

Fourth admission—November 1908 'Myalgia,' 42 days, discharged cured

Pains in loins, also in left knee

This man is still with the regiment, no admission since

CASE V U D

One admission—April 1908 'Malta fever,' 78 days, sent on three and-a-half months' sick leave

Diagnosis as in case III, no complications. No subsequent admission, except for 'Frontier Soie'

CASE VI M S FOUR ADMISSIONS

First admission—May 1908 'Pyrexia,' 72 days, discharged to duty

Anæmia marked

Second admission—August 1908 'Pyrexia,' 15 days, sent on two months' sick leave

Third admission—November 1908 'Synovitis,' 13 days, discharged cured. Right knee affected

Fourth admission—December 1908 'Arthritis,' 6 days, discharged cured. Wrist affected

This man has just been transferred to the gunners, and has had no further admission

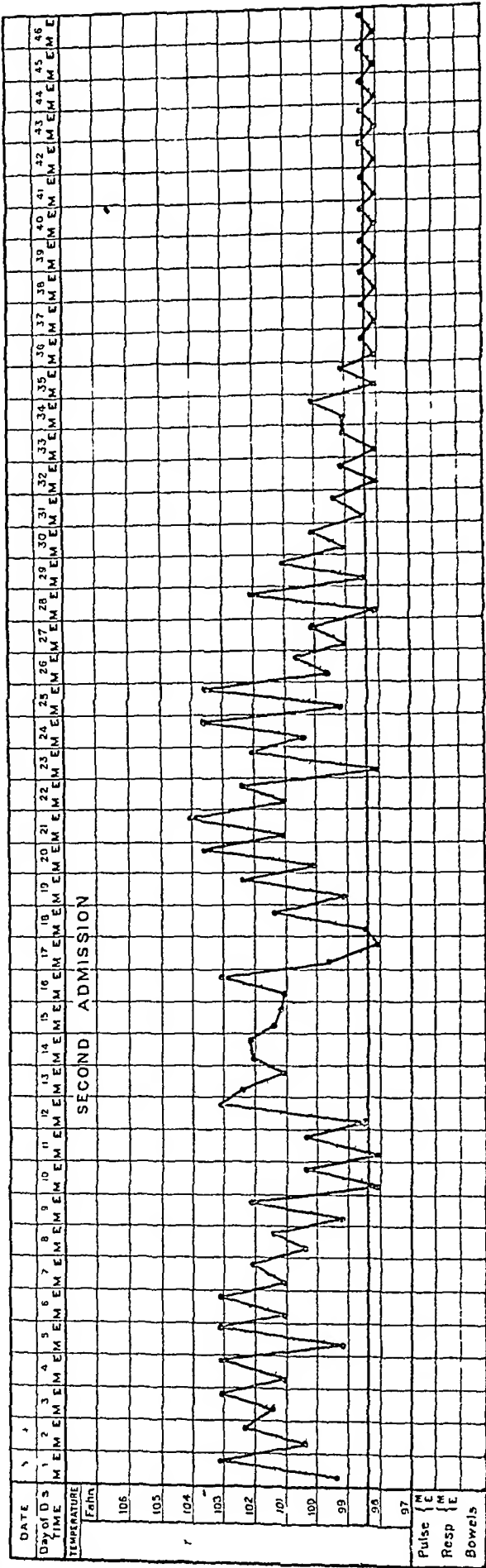
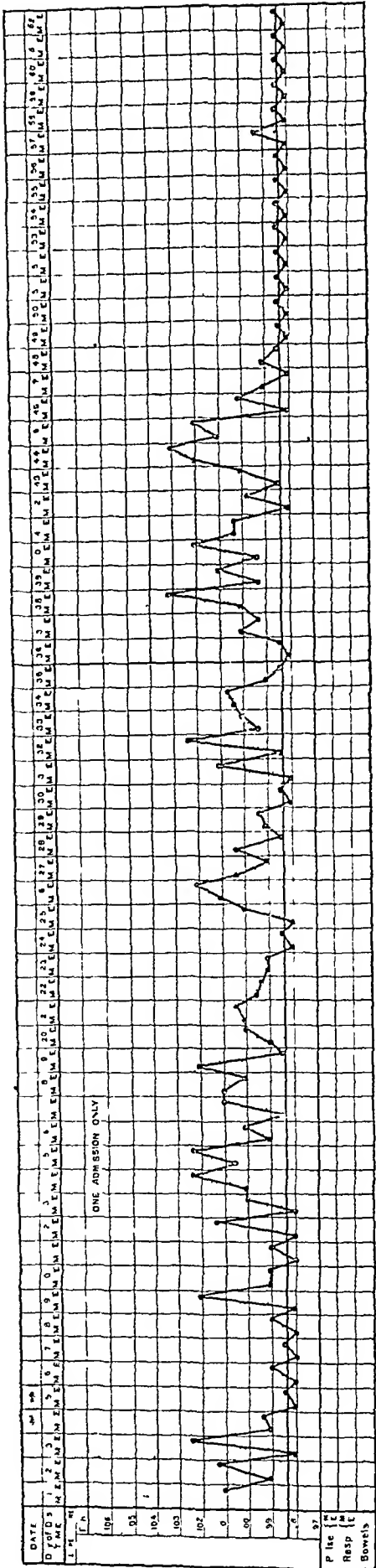
CASE VII M V S TWO ADMISSIONS

First admission—April 1908 'Malta fever,' 54 days, sent on three and-a-half months' sick leave

Diagnosed as in case III

EXTRACTS FROM MEDICAL HISTORY SHEETS, 69TH PUNJABIS

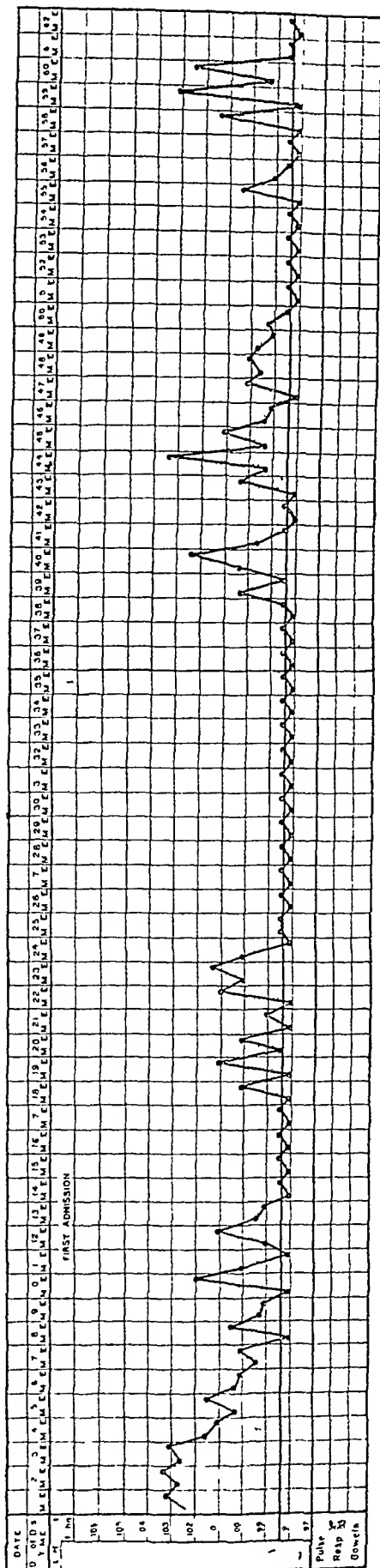
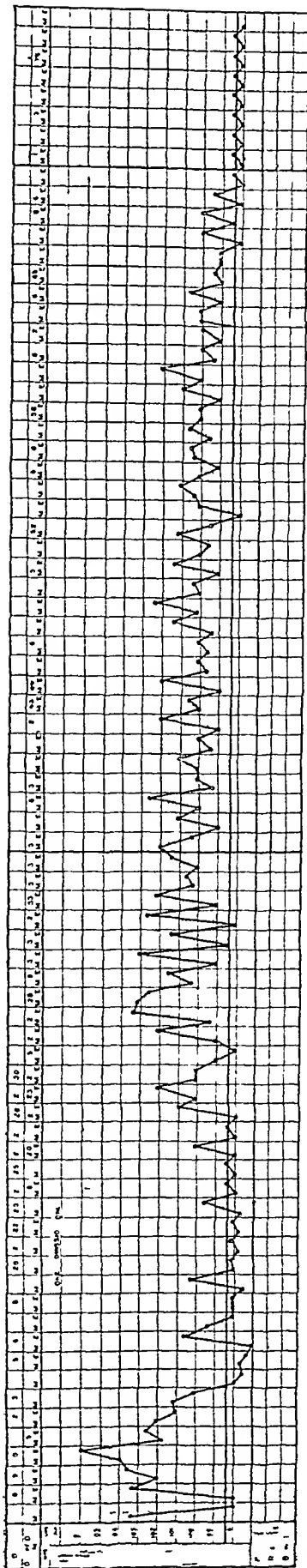
By CAPTAIN E C TAYLOR, I M S,
Medical Officer, 69th Punjabis



EXTRACTS FROM MEDICAL HISTORY SHEETS, 69TH PUNJABIS

B1 CAPTAIN E C TAYLOR, 1MS,

Medical Officer, 69th Punjab



Second admission—March 1909 'Sprain ankle,' 6 days, discharged cured
No admission since

CASE VIII N D FOUR ADMISSIONS

First admission—January 1909 'Arthritis knee,' 3 days, discharged cured

Second admission—January 1909 'Arthritis knee,' 35 days, discharged cured

Third admission—March 1909 'Pyrexia,' 65 days, discharged cured

Remittent fever for 36 days with irregular pains in and around joints, but no swelling of joints

Fourth admission—November 1909 'Pyrexia,' 37 days, discharged cured

Fever for three days with three evening rises about ten days later. Acute pain in hip joint and sciatic were lasting three weeks

CASE IX D D

One admission—September 1909 'Pyrexia,' 64 days, discharged cured

Ochitis during first week no other complications. Has had no admission since, but had complained of pain in the testicle which a suspender had relieved. He is a band boy and has no hard work

To my mind these cases resemble Malta fever, and the interesting feature is that no positive reaction was obtained in a reliable laboratory. Cases IV and VIII are particularly interesting in that they had joint symptoms before the onset of the fever. Case IV, I remember, came to hospital on the march, having just done 16 miles, and was reluctant to stay in hospital

ENTERIC FEVER IN BAGHDAD, TURKISH ARABIA

BY H. BASIL ROSAIR, F.R.C.S.,

Assistant Surgeon, "Comet"

THESE few notes that I have jotted down from time to time on the treatment of enteric fever in Baghdad may be of some interest to the numerous readers of the *I M Gazette*

During the last two years I have seen 49 cases of enteric in the country. I say "seen," and not "treated," because the general idea is that none but Persian doctors know the genuine and national treatment of what is known here as *Nocta* (*nocta* in Arabic is "spot"), or its English equivalent enteric fever. The foreign practitioners here have a fairly wide practice, but it is seldom that we have the opportunity of watching the progress of an enteric case from commencement to termination

There are about six Persian doctors in the country and more than 90% of such cases fall into their hands. Out of the 49 cases that I have

seen and treated, 34 have been in consultations, for which I have been called by Persian and Turkish practitioners with the view of ascertaining my diagnosis. Through one of the Persian doctors, however, I have had the opportunity of watching a good many cases from start to finish. Most of these Persian practitioners have a very fair knowledge of English and French drugs and frequently make use of them, but in enteric fever they seldom require them. One Persian practitioner in fact, previous to making a study of medicine in his own country, had been a compounder for many years with the English doctors of a Protestant Mission

The medicines used in the treatment of the disease are practically *nil*. The whole treatment is based on what they call cooling remedies and may be summed up as follows—

Directly the patient is pronounced to be suffering from *nocta*, all solid food is wisely prohibited. What is his diet? The doctor never worries about this and is in fact perfectly indifferent even though the patient has nothing in the way of substantial nourishment for days. He, however, suggests chicken soup and milk in very small quantities, but leaves this entirely to the discretion of the invalid and attendants; the latter are invariably the relations and the mother-in-law, or in case of that important personage being "non est," the grandmother plays the part of the chief nurse. On the other hand, the patient is allowed to have to his heart's content the following—

Fresh lime juice, fresh orange juice, the juice of water-melon, barley water and what they have great faith in "*mai benefsha*," which is an infusion made of dried violet flowers. The latter is undoubtedly a pleasant and effective laxative, diaphoretic and diuretic. Another juice given is that of the pomegranate fruit, but this is only permitted when diarrhoea is a complication. Save the last-mentioned, these so-called cooling remedies are used in all cases uncomplicated with lung symptoms

For the headache in the first week, leeches to the temples or to the nape of the neck are a favourite remedy. In the case of any severe lung complication, dry or wet cupping to the chest and back is the inevitable weapon. Little or no attention is paid to any abdominal symptoms, except perhaps, in the case of abdominal pain when they resort to linseed poultices

Enemas are not much in favour, though occasionally I have seen them ordered. Plain glycerine, warmed, is the one most frequently used. A very favourite mode of inducing defæcation is the insertion into the anus of a piece of ordinary soap, cone-shaped

In the way of external applications the treatment is practically limited to what is termed "*Haliblo*," literally meaning "milking" (from the Arabic *halib*—milk). It is carried out

throughout the course of the disease, in any case at least till the fever has abated. The process is very simple and as follows —

Every couple of hours when the fever is high and less frequently when low, a woman suckling a girl baby is brought to the bedside and by manipulation carried out by herself, she sprays the milk from her breasts on to the patient's head and face. In certain cases where the temperature is very high, the lips and tongue dry and the patient complaining of constant thirst, the milk is sprayed into the open mouth. The whole treatment seems repulsive and nasty, and I certainly wouldn't have it myself, were I dying of enteric in the country, but invariably the patient expresses great relief and comfort. On the other hand, I cannot but deny that I have often agreed to it being carried out, my move, even advised it at times. I am not, however, alone here, for in this I may mention that the other foreign doctors, such as the Residency Surgeon, the C M S Doctor, and the Doctor to the German Consul fully concurred. The treatment can do no harm, if no good, and considering this, it is necessary with the view of encouraging practice to suit the customs of the people.

It must be clearly understood that the woman must be the mother of a girl baby, as the general belief is, that the milk is then cooling, whereas that of a woman with a boy baby is heating. To divert a little from the subject

In many cases where a boy child, that is still at the breast, suffers from anything like an eruption on the body or from any disease produced by what they call over-heated blood, the mother of a girl baby is brought as a wet nurse, and till the child recovers or dies, he does not take his own mother's breast again. On the other hand, when it happens to be a girl child suffering from such a complaint, they then resort to the milk of an ass. This certainly sounds paradoxical. The reason attributed why a boy is according to them more hot-tempered than a girl is, because the milk he had from his mammy was less cooling to his blood than what his sister had. Still in the case of a girl they resort to the milk of an ass. Surely, one would argue that a dogged, stubborn animal like an ass was probably fed on something like boiling milk, boiling not taken in degrees of heat, but in the sense "cooling" is understood.

To go back to the treatment. During the intervals of the "milking" a cloth soaked in ice or ice and vinegar is applied to the head and though this, one would expect, is much more refreshing and soothing, it is appalling to see how patients of all ages and both sexes look forward to the "milking."

Right through the disease, even though of a severe nature, there is practically no change in the treatment. The juice of the water-melon I have seen given in two cases of severe tympanitis with

haemorrhage, both of which recovered. The fruits from which the juice is extracted are always stored in some cool place, generally here in the subterranean rooms, what are called *sundahs*.

Only as recently as a couple of months ago I had occasion to be called in to treat a little Arab boy about 9 years old. He had been under Persian treatment for some time, and when I saw him, he appeared to be at the commencement of his 3rd week. His father being of poor circumstances they were unable to continue paying their medical attendant, whose fees amounted to about Rs 5 a day. Through friends I was asked to extend the hand of charity, which I promised to do after seeing the patient. The poor little fellow had under orders of his medical adviser been fed on nothing more than water and melon juice for the previous eight days, his temperature during 24 hours ranged between 102 and 104, and his general symptoms and appearance all shewed that he was decidedly suffering from enteric fever for which he had been treated. The youngster was in the opinion of his parents dying, and it is purely on this account that they agreed to give him English medicine aided by my explanation that what the boy was to get was no medicine but food in liquid form. Finding that the boy could not retain milk, I gave him hourly feeds of a tablespoonful of chicken soup and gradually increased the strength and quantity. The boy recovered. The chief feature in the case is that, for eight days (and this fact, my friends, who are neighbours of the patient vouch for) the boy had nothing more than water and melon juice. Notwithstanding this, his general condition was very fair.

In conclusion, I must add that, however much I may be influenced by the treatment above-mentioned owing to its decided success, the mortality in the 49 cases being 3, *ie*, approximately 6%, I always keep in mind the great importance of antiseptic precautions for the safety of the household. This I have always insisted on either when treating a case myself, or if a consultation, and I must admit that though it occasionally calls for a general smile or some objectionable remark, they invariably agree to it on the grounds that it does not in any way interfere with the patient.

I apologise for the term "doctor" being so frequently used, but in this country it is the only English or French term known for any medical practitioner.

THERAPEUTIC USES OF BOERHAAVIA DIFFUSA (LINN.)

P. B. B. BASU, M.B.

Teacher of Medicine, Temple Medical School, Patna

Vernacular name—The vernacular name of this plant is *Punarnaba* or *Shetpurna* in

Bengali, and *Gappurna* or *Ganparwa* in Hindustani.

Description—It is a very common low creeping plant with many diffused stalks, about two feet long. Flowers pale-rose coloured much scattered on long branching peduncles from the axils and at the end of the branches, flowers all the year, seeds brown, oblong, striated, very rough, leaves ovate, rather roundish, bright green above, whitish below, sometimes curled at the edges.

Varieties—Of this plant which is found all over India, there are two varieties, one with white, the other with rose coloured flowers. Sanskrit authors prefer the white variety for medicinal use, but it is not so common as the other variety (*vide* page 221 of *Materna Medica* of the Hindus by U. C. Dutt).

Error in Identification—There is one source of error in identification. There is another plant very similar in appearance of the leaves which is also known to Kabiñajes as *Gappurna*. A sample of this latter plant was identified at the Royal Botanical Garden, Calcutta, as *Trianthema Monogyna*. In fact, it was through the kind favour of Captain Gage, I.M.S., that I was able at first to secure the right plant from the Botanical Garden.

Preparation and dose—In Sanskrit the plant is called *Sothagru* which means remover of dropsy. Kabiñajes usually prescribe a simple decoction of the root of this plant with chiretta and ginger in dropsy cases. Chakradutta, a Sanskrit author on Medicine, gives a formula for compound decoction prepared by boiling the root of *Punarnaba* with nim bark, leaves of *Trichosanthes dioica* (Palwal), ginger, *Picrorhiza kurroa* (katki), *Myrobalan*, *Gulancka* and wood of *Berberis asiatica* (daruhardia) quarter of a tola of each, with two seers of water, boiled down to half a seer. Kabiñajes also use a linctus and an oil from *Punarnaba* root. For the investigation of the therapeutic value of this plant, the fresh juice squeezed out from the entire plant after having crushed it with a pestle and mortar, was used. A small quantity (1 to 9) of rectified spirit was usually added to make it keep. Dose of this *Succus* is one ounce three to six times a day.

Method of investigation—Very careful notes were kept of 19 cases of dropsy or jaundice in which this drug was used, as regards the quantity of urine in 24 hours, the quantity of albumen in the urine, pulse rate, and the effects on the dropsy from day to day, both before and after administration of this drug. The results of this enquiry are tabulated in the subjoined chart. It will be seen that five of these cases were cases of chronic parenchymatous nephritis. In each of these cases the urine increased rapidly in quantity after the drug

was given, in one case the total quantity rose from 9 ounces to 130 ounces. The average of the five cases being before treatment 25 ounces and after treatment 76 ounces. The specific gravity of the urine fell with the increase in its amount and the proportion of albumen also was lessened. In two cases the dropsy disappeared and in the other three was much diminished. The drug was tried in three cases of jaundice, all of which improved and one of them a case of catarrhal jaundice rapidly improved and was discharged cured in a short time. In the latter case the quantity of urine increased from 48 ounces before treatment to 158 ounces after treatment. The improvement in these cases appeared to be due to increased elimination of bile through the kidneys. The drug was tried in five cases of cirrhosis of liver with ascites. The increase in the amount of urine was not so marked as in other cases, and the effect on the dropsy was not perceptible. There are three cases of cardiac dropsy in which the drug was given. The results were, however, variable, and when the drug was discontinued and digitalis given instead, the latter was found to be far superior in these cases. The drug was tried in two cases of general dropsy from anaemia, and both improved considerably as regards their dropsy. In one case the urine rose from 48 ounces to 112 ounces per day. The last case was one of sciatica. This case was selected to see the effect of the drug on healthy kidney. The quantity of urine increased, and the specific gravity fell. The total quantity of urine in this case before the drug was given was only 14 ounces, this was due to extreme heat of the season and consequent perspiration.

Conclusions—From these observations it became evident that the drug, when administered internally, increased the amount of urine in almost all cases, by increasing the watery portion only. The results, however, are most marked in cases of kidney disease and anaemia. It seemed to be of no practical use in cases of ascites from cirrhosis of liver. It had no perceptible effect on the pulse and it was found to be inferior to digitalis in cardiac dropsy.

Subsequent use—Since these observations were made in 1906, the drug has been invariably used in Bankipuri Hospital in cases of general anasarca from kidney disease. During 1907 and 1908 we had 29 cases of parenchymatous nephritis treated with this drug alone. The results were always satisfactory so far as the albumen in the urine and dropsy are concerned. The dropsy disappeared more quickly in some cases than in others, but all cases improved considerably within a week or ten days. In none of these cases were any uræmic symptoms noticed while under treatment, although some of the cases remained for several months.

CHART SHOWING THE EFFECT OF BOERHAAVIA DIFFUSA ON THE URINE, &c
Bengali Punarnabi Local Gappurva Dose of Sucrus 51 three to six daily

Name and date of admission	Disease	2			Maximum quantity of urine in 24 hours and sp gr before giving Boerhavia	Quantity of albumen before Boerhavia was given	Quantity of albumen after Boerhavia was commenced	Effects on the dropsy	Pulse rate before and after	REMARKS
		1	3	4		5	6	7	8	
Magadwa, 13th June, 1906	General Anasarca Nephritis		9 ounces, 1025	130 ounces, 1006	Exhick's method 1 p c		0.2 p c	Dropsy was practically nil on 18th July, 1906	B 64 A 72	Dropsy reappeared when Boerhavia was discontinued
Pagra, 12th July, 1906	Do		17 Do 1015	53 Do 1010	7 p c		0.5 p c	Dropsy was better	B 70 A 72	Patient got diarrhoea and was discharged at his own request
Injoro, 29th June, 1906	Do		18 Do 1010	38 Do 1005	1 p c		0.25 p c	Do	B 76 A 70	Patient did not improve much
Dwarka, 22nd Aug., 1906	Do		44 Do 1015	64 Do 1010	5 p c		Traces	Dropsy gone Sept 1906	B 88 A 76	Patient improved rapidly so far as his dropsy and albumen were concerned
Monohar, 27th Nov., 1906	Do		32 Do 1018	96 Do 1010	3 p c		0.5 p c	Dropsy very much less	B 70 A 72	Discharged relieved on 28th Decem-ber, 1906
Do Lal Singh, 13th June, 1906	Jaundice		26 Do 1020	49 Do 1006	Nil		Nil	Nil	B 60 A 68	His jaundice improved
Sadagu 26th July, 1906	Do		36 Do 1010	72 Do 1010	Nil		Nil	Nil	B 70 A 65	Jaundice improved
Gungna, 19th Aug., 1906	Do		48 Do 1016	158 Do 1006	Nil		Nil	Nil	B 60 A 68	Ditto practically gone
Khesu Chaud, 21st June, 1906	Ascites Oedema of Liver		21 Do 1015	50 Do 1010	Nil		Nil	Girth of Abdomen continued practically same for 36e	B 90 A 69	Showed no improvement
Sanchai, 25th Oct., 1906	Do		60 Do 1020	64 Do 1015	Traces		Nil	Ascites improved	B 74 A 72	Ditto slight improvement
Santokha, 6th Oct., 1906	Do		8 Do 1025	48 Do 1015	Nil		Nil	No improvement	B 80 A 75	Ditto no improvement
Etbaran, 4th Dec. 1906	Do		16 Do 1020	18 Do 1024	Nil		Nil	Do	B 65 A 64	Ditto ditto
Kohni, 19th Sept., 1906	Do		6 Do 1030	48 Do 1010	Traces		Traces	Do	B 80 A 82	Dropsy did not improve, nor did the urine increase much till abdomen was tapped when urine increased but ascites rapidly recurred
Shyam Lal 6th July, 1906	Dropsy Mitral Regurg		12 Do 1015	36 Do 1006	Nil		Nil	No improvement of dropsy	B 88 A 88	Dropsy continued same for 15 days with Boerhavia when digitalis was given
Ram Dyal, 4th Nov., 1906	Dropsy Dilatation of Heart		21 Do 1020	84 Do 1020	Nil		Nil	Some improvement of dropsy	B 74 A 75	Discharged relieved on 15th Novem-ber, 1906
Dal Mahto, 22nd Nov. 1906	Mitral Regurg		16 Do 1024	64 Do 1020	Nil		Nil	Dropsy very much less	B 68 A 68	Discharged relieved 30th November, 1906
Sree Mahto, 16th Jan., 1907	General Dropsy Anæmia		48 Do 1008	112 Do 1010	Nil		Nil	Do	B 72 A 80	Discharged relieved
Chethrai, 26th Nov., 1906	Do Ankylostomiasis		32 Do 1015	58 Do 1015	Nil		Nil	Decreased considerably	B 72 A 72	Ditto
Ganpat, 14th June, 1906	Scintica		14 Do 1028	45 Do 1012	Nil		Nil	Nil	B 72 A 62	This case was selected to see the effect of the drug on normal kidney

A NOTE ON THE ADMINISTRATION OF QUININE IN CASES OF FEVER DURING PREGNANCY

By J EUGENE BOCARRO, L M & S,
Civil Surgeon, Broach

REGARDING the inquiry made on all sides at the present day on the question of the administration of quinine in cases of fever, etc., during pregnancy, it would doubtless be of great interest to some of your readers to know the conclusions arrived at on the subject by the Sub-Committee appointed by the Grant College Medical Society, as far back as 1892, under the Chairmanship of Surgeon-Major (now Lieutenant-Colonel) H P Dimmock, to investigate "the action of quinine administered to females for fever and other affections on the duration of pregnancy"

The Report* states that "the inquiry was conducted principally by means of printed queries circulated amongst the principal medical practitioners throughout the Bombay presidency." Thirty-three replies were received from several qualified and experienced medical men including some officers of the Indian Medical Service. The Committee remarks that "the list of contributors to the investigation was a fairly representative one," and "that the replies of those who are in favour of administering quinine for fever during pregnancy are more decisive in tone than of those against it."

The replies received are classified as follows. In favour of administering quinine during pregnancy 24 (unreservedly 21, with care 3); and against the administration of quinine 9 (undoubtedly 5, doubtful 4).

The investigations made by the Committee led to the following conclusions which I quote verbatim—

- 1 That the existence of pregnancy is no bar to the administration of quinine
- 2 That for fevers and other affections during pregnancy in which quinine is indicated, the effects of the drug are more marked than those of any other
- 3 That abortion following the administration of quinine is either the result of the original malady, or the effect of idiosyncrasy
- 4 That allowing for an idiosyncrasy in cases in which a tendency to abortion exists, and in others, as a matter of precaution, quinine is best administered combined with a sedative (opium)
- 5 Hence the old standing view of the action of quinine on the duration of pregnancy is not borne out by the clinical experience collected in the replies

* Report of the Committee appointed by the Grant College Medical Society to inquire into the effects of the administration of quinine in cases of fever during pregnancy. By Surgeon Major H P Dimmock, LRCP, MRCS, and H K Tivaria, BSc, LM & S, AIEE, London, with a discussion on the Report by the Members of the Society, 1893

As regards the dose and the period of administration the report states that the usual dose may be put down at from 2 to 5 grains, and the maximum at from 7 to 10 grains, but that even larger doses may be safely administered in every case throughout the whole period of pregnancy.

The report of individual clinical experience of the several contributors to the enquiry, and of those who took part in the discussion, is replete with interest, and the views of some of them may be here quoted with advantage.

Surgeon-Lieutenant-Colonel Barrow stated that "he has given quinine throughout pregnancy, in Central India especially, without bad effects."

Surgeon-Major (now Lieutenant Colonel) H P Dimmock in charge of a Female Hospital (The Bai Motilal Hospital for Women and Children, Bombay) says that "he has used quinine up to 15 grains for a dose and believes the effects are very favourable if the administration is commenced early, for fever in pregnancy." In the discussion on the report he said that "in cases of fevers during pregnancy, a temperature above 101° or 102° ought to be controlled as otherwise abortion would result. He referred to a case of a pregnant woman suffering from fever for one month she was given quinine (20 grains) for the first day with the result that she felt better, quinine was, however, repeated the next day and the temperature went down to the normal."

Dr J Annott (late Professor of Midwifery, Grant Medical College) in discussing the report said that "the conclusion arrived at by the Committee was what he had anticipated from his own experience. He further said that in cases of malarial fevers occurring during pregnancy he was of opinion that quinine was not only useful but absolutely necessary. He had many opportunities of testing the efficacy of quinine in such cases, and he had come across cases of fevers during pregnancy from which quinine had been withheld, where his practice was to give a larger dose than usual of quinine without any untoward results. He narrated the history of the case of an European lady from a malarious district suffering from fever and in a very weak condition, quinine had been withheld before she came under his treatment, he at once administered 30 grains of quinine, in divided doses, with marvellous effects. With regard to the belief that quinine would cause abortion, he regarded the fears so entertained as a remnant of an old prejudice."

Dr T B Nariman, Honorary Physician to a Lying-in Asylum (the Parsi Maternity Hospital, Bombay) with a large experience in Midwifery, writes thus

"I know dozens of cases where quinine has been used with an evil intention without success. I do not think quinine has any ecboic action. Any untoward result that may occasionally follow the ministration of quinine is the result of idiosyncrasy. The reputed action

of quinine on the menstrual flow is neither constant nor prompt to infer a specific action of the drug on the uterus. During labour when the pains are weak I have found quinine in 10 or 15-grain doses increase the force and frequency of the pains in some cases—not invariably. In some cases of continued fevers, notwithstanding the large and repeated doses of quinine, I have seen the usual monthly flow retarded instead of being accelerated, that is, the menstrual flow does not appear for days together, or until the next period. Owing to the conservatism still existing as to the action of quinine in pregnancy, the result of the old school teaching, I would guard the quinine with opium in a case with a tendency to abortion. I have known a case where, on consultation, quinine was decided upon, and before that was given abortion occurred. A single dose, had it been administered, would have led, as I believe it has often led, to a wrong conclusion. In my large midwifery practice and experience, I never had cause to regret the administration of quinine at any period of pregnancy. I have tried salicin and the salicylates, bismuth sulphate up to 50 grains in the day, but I consider nothing equal to quinine for fever during pregnancy.

Dr. Dadabhai Jainspji, a retired graduate of the Grant Medical College, states that "he has used quinine in any one of the months of pregnancy without any bad effects, and that he has given up to 24 grains in one day."

Of the other replies in favour of the administration of quinine in pregnancy the report states that "the following two represent the views of nearly all the replies." Thus, the late Dr. T. M. Shah, L.M., Chief Medical Officer of a Native State, wrote as follows—"In the early days of my practice I was led to believe in a few cases that quinine was instrumental in bringing about abortion, but later on, and with further experience, I have given up this belief. Abortion is, I now believe, the result of the fever, or the original malady, and I entertain no scruples in administering quinine to pregnant women at any period, in either small or large doses (2 or 4 grs to 10 grs)." And Dr. H. J. Appu wrote thus—"In the course of my very near 15 years' practice, I have unhesitatingly given quinine in pregnancy at all periods in good doses without any mishap. I am of opinion that it is the fever which is more to be feared than the quinine, even in women with a tendency to abortion, I should check the fever with quinine, rather than let the fever run its own course and bring on an abortion, which it very often does. Though taught that quinine is an uterine stimulant and forms an excellent prescription in combination with ergot, iron and strychnine in subinvolution, I am of opinion that the quinine is used up in (reducing) the fever than in exerting its action on the uterus. Even after the attention of the society was called

to the point, I have given quinine, and in one case deliberately with a view to expedite labour (at the 8th month) without any effect in this direction, the case went to the full period."

The writer of this paper, in contributing the results of his experience towards the enquiry, suggested the hypodermic administration of quinine (10—15 minims of a 25% solution of the neutral sulphate of quinine every 48 or 72 hours) in place of large doses of quinine given by mouth, and he remarked as follows—"In my experience I have not found any ill effects follow the use of quinine by hypodermic injection."

My experience subsequent to the publication of the above report has tended to confirm the idea of the advantage of the hypodermic injection of quinine over the administration of quinine by mouth in cases where the drug was clearly indicated during pregnancy, and the following case, among three such others, occurring in my clinical practice may be regarded as more or less a typically illustrative one—

"Mrs H, European, aged 23, in her first pregnancy, was seen by me with her usual medical attendant, Dr. M, on 6th November 1894, at 1 o'clock in the afternoon. Was told she was in the seventh month of pregnancy. She had had several intermittent attacks of high fever during the past week, the temperature, it was said, had on one occasion risen to 105°. At my visit temperature 103.4°. On the day previous to my visit she had commenced to show signs of an impending abortion, which was ascribed to the use of two pills of quinine, each containing 2½ grs, taken on that day. Now uterine pains had set in, and there was a bloody discharge from the vagina. At my suggestion Dr. M prescribed the following mixture—

Soda Salicylat	grs 40
Tinct Opii	ms 60
Pot Bromide	grs 40
Liqr Ammon Acetat	℥ i
Tinct Zingiberis	ms 30
Aqua ad	℥ viii

At the same time ms 15 of a 25% solution of quinine was injected into the arm. By the evening the pains had gradually subsided. At 4 A.M. the next day there was a sudden discharge of about an ounce of pure blood, soon however, the hæmorrhage ceased completely and with it the pains. At 7 A.M. at my second visit, this news was reported to me. Her temperature was now normal, pulse good, no pains whatever, and in all respects she was doing well. In due course the patient advanced to the full term of pregnancy without any further misadventure.

The successful use of the hypodermic injection of quinine in a few cases, though on the face of it sufficiently encouraging, cannot, of course, be accepted as affording sufficient evidence on which to base conclusions as to the merits of this method of administering quinine in pregnancy, especially in cases where there

exists a natural tendency to abortion. For an impartial investigation of its value, further clinical evidence is wanted, which, if forthcoming, should furnish the necessary information in support or otherwise of the measure here advocated.

It will be observed that the conclusions drawn by the Sub-Committee in their Report are based upon clinical experience alone, but notwithstanding the absence of physiological and other proofs there appears to be quite sufficient evidence set forth therein justifying the use of quinine within all periods of pregnancy irrespective of the maladies for which the drug is therapeutically employed*. If, therefore, during pregnancy quinine be indicated, where even a valuable substitute like euquinine fails to produce the desired effect, there is no good reason in the opinion of the majority of clinical observers why the drug should be withheld. On the contrary, the results of clinical experience have shown that in cases of idiosyncrasy, or in cases with a natural tendency to abortion, a mishap not unfrequently follows upon the use of other drugs than quinine, or occurs sometimes spontaneously without the exhibition of any drug at all. Hence manifestly, the condition of pregnancy in itself should be no bar to the administration of quinine where the use of this drug is indicated beyond all doubt.

However, to administer quinine in unnecessarily large doses (upwards of 10 grains per dose) and at haphazard cannot, however, be regarded as a safe procedure. It is generally advisable to administer the drug under certain precautions which, as suggested by my personal experience, may be enumerated as follows—

(1) As far as possible it is best to avoid administering quinine on the empty stomach of the patient.

(2) To avoid giving the drug by mouth if the liver is functionally out of order (except, perhaps, in cases of malarial origin), as it is not likely to be well tolerated. In such cases my practice is to relieve the liver first and give quinine afterwards, or if quinine must be given at once, I prefer to inject the drug subcutaneously.

(3) Quinine is safest administered in pill or tablet form, or encapsuled in cachets, as being least likely to cause nausea or any irritability of the stomach.

(4) If idiosyncrasy, or a tendency to abortion exists, quinine, if given by mouth, should be combined with a sedative, opium or bromides, otherwise that such cases are best treated with a subcutaneous injection of the drug.

* The report states that the following are the affections occurring during pregnancy for which quinine was administered—Fever, neuralgia, malarial cachexia, malarial dyspepsia, enteric fever, dysentery, debility, hemiparesis, tic and sciatica, of malarial origin, sweating palms and sole, splenic congestion.

As the main features of the report tend to show that quinine may be safely administered during pregnancy, it is needless to refer to the replies, received in the minority, against the use of the drug except to mention the very pertinent remark made in the report regarding the five replies which negatived the administration of the drug undoubtedly. As to these five replies the report states that "None mention abortion as having occurred in the writer's practice through the administration, although they all express a belief in the oxytocic action of quinine, and two of them attribute to it emmenagogue properties."

In reviewing the question of the use of quinine in pregnancy its alleged abortifacient effect is deserving a word of notice. This matter is of importance from a medico-legal point of view. In the latest edition (1905) of Taylor's Medical Jurisprudence, revised by Dr. Fred J. Smith, M.A., M.D., the author states as follows in reference to the subject: "The definite effect produced by the administration of quinine *during labour* (the italics are mine) is partly due to its general tonic action and partly to a direct action upon the uterus or uterine nerves. It definitely increases uterine pains, but there is no undisputed evidence that it will produce abortion even when pushed." It will be seen that the Report of the Grant College Medical Society bears very fair corroborative evidence on this latter point, nevertheless physiological proofs by experimentation on animals are perhaps desirable, and a few such experiments carried out in our Bacteriological Institutes would probably help to settle both the clinical as well as the legal aspects of the question beyond the pale of doubt and uncertainty.

A Mirror of Hospital Practice.

ELEPHANTIASIS TREATED BY THE IMPLANTATION OF SILK SUTURES AS ARTIFICIAL LYMPHATICS.

By L. BODLEY SCOTT, M.D.,

CAPTAIN, I.M.S.,

Civil Surgeon, Barisal.

THE following is an account of three cases, of elephantiasis treated by the implantation of silk threads as artificial lymphatics. The results are not altogether encouraging, though some measure of success was attained. The cases were treated in Barisal dispensary.

Case I—Aishad Ali, aged 34, admitted on July 28th 1909, with elephantiasis of scrotum and penis of about one year's duration.

The scrotum was as large as a large cocoanut and the penis as large as a small mango. The skin and subcutaneous tissues were hard and

thick, but the skin was not warty. There was no hydrocele operation on July 29th.

After very careful preparation of the skin, six silk threads were introduced into the thickened subcutaneous tissues, two were carried from the bottom of the scrotum upwards into the hypogastric region, and two similarly along the sides of the penis, two more were carried from the sides of the scrotum through the perineum on to thighs just below the buttocks. No incisions were made. A needle about 5 inches long was used and after inserting the point, the tissues were pinched up and threaded on it till it was brought out as far distant as possible in the healthy tissues. In this way a thread 8 to 10 inches long could be introduced between the points of entrance and exit of the needle. A little manipulation ensured that the two ends of the thread were well buried beneath the skin. Rubber gloves were worn so as to avoid all risk of infecting the silk in handling.

Progress—For some days there was some heat and pain with much itching of the skin. These gradually subsided, three days after the operation, marked reduction in the size of the scrotum was noted. Five days after, it was noted that the skin on the sides of the scrotum was much thinner and more supple. These changes were progressive as regards the scrotum and on discharge from hospital twenty-two days after operation, this was about half its original size and the integument very much softer and thinner. The penis, however, from the first showed no appreciable improvement. The silk threads were well healed into the tissues, and there were no signs of suppuration or irritation around them.

Case II—Jaban Ali (convict), aged 55, admitted to the jail hospital on July 27th, 1909, with elephantiasis of penis and scrotum, duration not stated.

The scrotum was as large as a small coconut and the penis about twice its normal diameter. The skin and subcutaneous tissues were hard and thick. The skin was not warty. There was no hydrocele.

Operation on July 27th—This was performed as in case I, but only four threads were introduced, one into each side of the scrotum and one into each side of the penis. All were brought out in the hypogastric region.

Progress—For some days he had severe pain in the scrotum, and hypogastric region which passed off in four or five days. Four days after the operation it was noted that the thickening of the skin seemed less. Not till 15 days after was any reduction in size noted. The silk threads healed into the tissues without any signs of inflammation and he was discharged from hospital on August 21st. As transfer from the jail three months later, the scrotum was considerably reduced in size. It was still, however, larger than normal and some thickening

remained in the lowest part. The man had noticed no improvement for the last two months, but also no backward tendency. No appreciable change had occurred in the penis as the result of the operation.

Case III—Jadunath Sil, aged 26, admitted on August 3rd 1909, with elephantiasis of penis and scrotum, duration not stated.

The scrotum was enlarged to about the size of a small man's head. It was extremely hard and solid to feel and the skin extremely warty. The penis formed a second hard warty irregular shaped man about the size of a man's fist. The glans was buried under the hypertrophied prepuce. He had an enlarged spleen.

Operation—On August 6th, 1909, nine silk threads were introduced, three into the penis and three into each side of the scrotum. Some of the threads could not be carried a sufficient distance under the skin by the method described in case I. The needle was, therefore, brought out half way through a small deep incision about $\frac{1}{4}$ inch long made with a tenotomy knife. It was then reintroduced through the same incision and brought out at the desired spot in healthy skin. The small incisions were each closed by a single horse-hair suture. They would have been unnecessary if a longer needle had been obtainable.

Progress—For three days he had considerable pain in the scrotum which gradually subsided. Itching of the affected parts lasted several days. Throughout convalescence he had occasional fever evidently malarial. Twelve days after operation it was noted that the skin on the sides of the scrotum near the perineum had become thinner and softer and the warty nodules had diminished. One month after operation the skin on the sides of the scrotum was found considerably less nodular and more normal in appearance and to feel. The size of the swellings was not appreciably reduced, but the patient thought the scrotum slightly smaller. The silk threads had all healed in.

One half month after operation a small discharging sinus was noted on the left side of scrotum. This may have been connected with one of the silk threads, but it closed in about ten days. He was discharged on October 1st, nearly two months after operation, with only slight improvement in the skin of the scrotum, but no appreciable reduction in size of either swelling.

He returned in December for amputation, having had some trouble from discharging sinuses in the scrotum, and the size of the swellings having in no way diminished.

One of the silk threads was found with its end protruding from a sinus. Amputation of all the thickened tissues was successfully performed, the testicles being placed into pockets beneath the skin of the thigh and the penis being subsequently grafted.

URTICARIA IN CONNECTION WITH
MALARIA

By N S WELLS, M B, B Ch,
CAPT, I M S,
Budaula

RECENTLY there has been some correspondence about Malarial Urticaria in *The Indian Medical Gazette*. The following cases may be worth recording—

Case I—A lady had what proved to be a severe attack of malignant tertian beginning with a temperature of 102° F and a measles-like rash all over the body. The temperature was continued until the evening of the second day when the rash also subsided. The following day the temperature again rose to 102° F rising to 105° the next evening. During the night a plentiful crop of urticaria appeared all over the body, the wheals being raised well above the surface and of various sizes up to $2\frac{1}{2}$ inches in diameter. Crescents were found in the blood. The patient was put under liberal doses of quinine, and the fever soon subsided. The urticaria was slightly improved, but new crops appeared daily and settled down to a chronic course lasting three months, varying in severity from time to time. The crops of wheals appeared most irregularly at all hours of the day and night, and though very careful observations were made, no clue to the cause was found.

The patient was put on a strict milk diet and kept strictly in bed. She refrained from scratching and all the vaunted remedies were tried one after another, including arsenic, calcium chloride, ichthyol, antimony, etc. A combination of starch with camphor and menthol, of the various applications used, was found to give the greatest relief to the intolerable itching. Various diets were also tried. The appearance of the wheals was not influenced in the slightest degree.

It then struck me that the urticaria was due to insect bites as the carpet of the room occupied was a fixture and had not been up for several years. The patient was removed to an empty room in an upper floor, and great precautions taken to exclude bugs in the bedding, but midges could not be excluded though much less than in the room below. The patient began to improve immediately, but fresh crops still appeared though much milder and at longer intervals until the patient went away for a change for five days. No fresh crops appeared after leaving the house even when she returned. The original room was in the meantime cleaned. During the height of the attack she was away from the house for one night but had a fresh crop that night.

The patient was not subject to quinine urticaria and during the latter part of the attack was not taking quinine. The particular insect causing the urticaria was not found. It was probably due to bugs or midges—probably the latter.

Case II—A native woman, the wife of a jail compounder, with the history of urticaria for about six months when I was consulted. In her case too there was fever, diagnosed as malaria by the Hospital Assistant, preceding the urticaria. The fever soon subsided under quinine, but the urticaria was uninfluenced by the vigorous treatment pursued. The Hospital Assistant tried practically every drug that has been recorded as beneficial in urticaria, and rigid dieting was also tried.

A recourse was had to hakims also. One item of interest in the history was that on one occasion the patient went to Benares for three days during which period she was well, but the urticaria appeared again on her return home. Quinine and arsenic were ordered for a few days for observation. Her condition improved slightly, but new crops still appeared daily. The maximum outbreak was about 11 A.M. Remembering the first case, the house was thoroughly fumigated and every article aired in the sun and thoroughly searched for bugs, etc., and the patient and her husband were told to be particularly careful to avoid carrying in fresh insects into the house. In this case bugs were suspected. The patient was well under a week. It was necessary to fumigate the house, etc., a second time before she was free of the attacks.

Case III—European girl, living in a hotel. I was asked to see her for an attack of fever. There were a slight septic sore-throat and a mild crop of urticaria also. The fever was probably due to malaria and the sore-throat. I was on a holiday and could not examine the blood. The mother was told that the urticaria was probably due to bug bites and the child was put in a fresh bed with clean linen. She was put on small doses of quinine, no fresh crops of urticaria appeared but the fever lingered for a few days. No diet was prescribed.

In the books of reference at my disposal I can find no mention of malarial urticaria, but in Vol II, Allbutt's *System of Medicine*, the occasional ushering in of an attack of Benign Tertian with urticaria is noted.

It is extremely unlikely that malaria of itself can give rise to urticaria, otherwise one would be constantly meeting with this complication instead of very rarely. Everyone I have spoken to on the subject has denied seeing urticaria due to malaria, these are the only three cases I have seen amongst thousands of cases of malaria. In the case recently recorded in the *I M G* the patient in addition to treatment with quinine was admitted into hospital. The urticaria was cured in 24 hours. Had he remained at home, the story would probably have been different.

These three cases seem to show that a malarial attack may predispose the blood to an attack of urticaria when some exciting cause is present such as insect bites. All three cases had lived under the same conditions for some time before there

was fever followed by urticaria, and in each one the precautions taken against insect bites were the only means which proved successful, while the fever was treated with quinine. This drug by itself had practically no effect. In all the cases the constant absence of the insects could not be insured, but once the patients were free from fever and urticaria for a while, it seemed that the insects, whichever they were, lost then power for evil. It is clear that these cases cannot be classed solely as chronic urticaria due to insect bites.

THE ECHIS CARINATA BITE

By R P BANERJI,

Central Jail, Udaipur

Read Lieut C A Owen's paper *Indian Medical Gazette*, Vol XLIII, No 12, p 477, Dec 1908, part 1

I HAD had ample time to make a study of this genus of Indian Ophidia from 1892 to 1905. Invariably the pathognomonic symptoms begin after 48 hours. Capillary bleeding begins then in some cases to a very enormous extent. (My case Raghunandan Sepoy, *Australasian Medical Gazette*, 1895.) Local signs and symptoms are often beguiling and insignificant. Antivenin proved useless in my hands, strychnine proved only useful. Of the 36 cases treated by me none were lost, and I could, therefore, give no morbid anatomy of any case. Severity of the case begins from the 48th hour after bite and the danger is not over till the 15th day after bite. I give the detail below *ad seriatim*—

SYMPTOMS AND SIGNS OF ECHIS BITE ARE—

That immediately after bite—The edges of the wound tumefied and inverted, if not deeply inflected, they are gummed together, otherwise bleeding, edges are loose and separate. The part bitten is hot and painful; erysipalitic swelling of the adjoining parts begin.

That after 6 to 20 hours—Headache and fever come on, breathing not affected, eyes become red, pupils dilated, great thirst complained of.

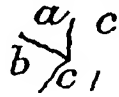
20 to 27 hours—The part bitten now becomes livid and watery serum oozes out of the puncture. Headache and in some delirium supervenes and increases. Sense of sinking is very urgent in some. The characteristic sign of capillary bleeding now begins inasmuch as all the mucus surfaces bleed. Heart presents to be weak and with distinct systolic murmur, sharp and shrill in tone, breathing now becomes hurried, patient exhausted. Tetanic spasm (opisthotonos) noticed in one case only. Epistaxis enormous in all cases, bloody urine (renal hæmorrhage) markedly great. In some cases old scars on the body bleed.

3rd to 5th day—Faint, exhausted, sometimes very delirious.

5th to 9th day—Bleeding less, feverishness on, swelling not down yet. Heart weaker, comatose.



9th to 13th day—Very weak and faint, could only be roused by stimulations, comatose, pupils strongly contracted.

Remarks—Remarkably noticed that female echis was more dangerous and its bite more effectual, distinct, deep and bleeding, edges of the puncture triquetrous something like, this



and the larger flap corresponding to the inner side of the fang (left fang)

One can at sight recognize female echis from male by the following marks.—

FLMALE	MALE
1 Smaller, stouter and thicker in body	1 More slender, fine and graceful markings on
2 Tail short, thick and blunt	2 Tail long, tapering and ending to a fine point.
3 Side markings irregular and cut at places	3 Side marking continuous and beautifully sinuous
4 Dots in the ventrum larger, distinct and irregularly disposed	4 Dots in the ventrum set at intervals in regular lines and are more purplish in color
5 Colour—yellowish drab.	5 Colour—more or less slaty
6 Gait peculiar, walks out in curls	6 Walks twisted
	
7 More aggressive	7 Less so, only attacks when hurt, or teased out of place
8 Head huge, eyes prominent and protruding, pupils golden yellow	8 Head moderate; temporal angles acute, eyes and pupils small, and yellowish or lemon coloured



I may be excused if I am a bit too evasive, but I give all I have to say in the matter and dismiss the subject with saying, that strychnine was the only potent remedy I found to counteract Echis and Dahia poison, which varied in strength with the habitat of such ophidians. Those of gravelly and sandy homes are invariably stronger than their alluvial and marshy-lived brethren. This oversight led to fallacies in Dr Fayet and Shott's experiments where Echis are said to possess no dangerous poison in them. Echis found in Multan, Lahore, Ferozepur, Rajputana are far more dangerous than those of Champaran, Hazaribagh in Bengal, and Carnatic. Again, strychnine is to be pushed till its physiological effects are apparent and treatment extended till 15th day after bite, as sudden appearances of bad symptoms have been noticed when the patients apparently were doing well. If at all cases died, they did die of failure of heart and cerebral hæmorrhage. Brandy-ammonia seemed to lessen the strychnine effects. Sugar (syrup) given reduced headache.

* The proper treatment of Echis bite is a fair subject for discussion.—ED, I. M. C.

Indian Medical Gazette.

APRIL

A USEFUL SERVICE BOOK *

THE object of this little book is expressed in its title, and, at greater length, in the preface. After a careful perusal, we are of opinion that the author successfully attains his object, of providing newly joined officers of the I M S, with a guide to their duties, while in military employment. It is not only newly joined officers, however, who will find it useful. The regulations quoted in the book will be found of service by all, even by the most senior. We know by experience, even with a fair knowledge of rules and regulations, how difficult it is to lay one's hand, at short notice, on the order or orders which one wants. Every I M S officer in military employment should provide himself with a copy. Indeed, it would be a good move if Government would supply the book officially to every regimental hospital.

At first sight, the length appears somewhat excessive for a hand-book, running, as it does, to 282 pages. The greater part of this, however, consists of the rules relating to stores and supplies, to leave, pay, and passages, with nearly thirty pages of miscellaneous regulations affecting I M S officers in military employment, all excellent things to have in small compass, for consultation at a moment's notice. The book will go into an ordinary side pocket with ease.

After these preliminary remarks, on the book as a whole, we will proceed to make some comments on particular statements.

On page 2 the author advises medical officers to use every opportunity of inculcating sanitary principles on men serving with the colours, in the hope that, on their return to civil life, they may carry them out, to some extent at least, in their own villages. "I believe that this is the only way in which we can at present hope to improve the sanitation of Indian villages." We may have our doubts about whether much improvement will be effected in this way, but we must admit that we do not see any other means more likely to attain the desired end.

On page 36 "Medical officers should never sign any letter drafted by a subordinate without reading it through and correcting it, if necessary"—excellent advice, not only to regimental medical officers, but to all officers, of every service and of every rank. If it were always acted upon, there would be less unnecessary correspondence to worry most officers.

Page 69 - "The name of the officer who signs the letter should be printed or *legibly* written at the head of the letter, as well as his appointment." If the name of the officer who signs the letter were legibly written at the foot, it would not be necessary to write it at the top also. It is surely not too much to expect that every commissioned, or gazetted officer should be able to write his own name. There are, however, hundreds of such officers who cannot.

It has not been considered necessary to tell the newly joined officer that he should sign every official letter with his name, not only with initials. But we have known a young medical officer, who had recently come from military to civil employment, sign an official letter, addressed to another officer twenty years his senior, not with his name but with a scrawl of illegible initials, not one of which could be deciphered.

Page 124, quotes from King's Regulations para. 944 "The senior combatant officer present at mess is responsible for the maintenance of discipline." Yet we can remember a case in which an officer of the R A M C got into serious trouble, if we remember rightly he had to leave the service, for not maintaining discipline among a number of young *combatant* officers, junior to himself. Whether he was actually compelled to leave the service, or resigned in disgust at being reprimanded, we cannot now be sure. The officer referred to subsequently entered the Colonial Medical Service, and died in 1906.

Page 130 "Medical officers are prohibited from recommending a change of station for duty, for a public servant, because the one in which he is serving does not suit his constitution." (Army Regs, Vol VI, para 51) This order applies to Civil Surgeons as well as to military medical officers. It is not so well known as it should be. It is laid down in Indian Medical Department Circular, No 10 of 16th June 1865, repeated in Indian Medical Department Circular No 73 of 31st June 1868, and has been repeated from time to time since, that medical officers are absolutely forbidden to recommend transfers on health

* A Handbook for Officers of the Indian Medical Service in Military Employ. Compiled by Captain H. Boulton, I M S, Medical Officer, 31st Punjabis. Printed at the Pioneer Press, Allahabad, 1909.

grounds. It is easy to see the necessity for such a rule. Every officer, in every unhealthy station, might get a medical certificate that a transfer to a more healthy station would be for the benefit of his health. Any medical officer could conscientiously certify that much. An officer should be fit to serve wherever the Government chooses to post him, if his health will not permit him to do so, he must take sick leave.

Page 149 "An officer taking leave on furlough is liable to be recalled at any time and must be prepared to join at once, at his own expense" [Army Regs, Vol II, para 233]

But on page 226 it is stated that officers recalled from leave on public grounds will be given free passage to their stations. Which is correct? Civil officers, including military officers in civil employ, have hitherto, when recalled from leave, always been provided with passages to India at the public expense. A recent order states that free passages will not be given in future, if their leave has nearly expired.

Page 175 Leave rules for the Indian Army, para 359, states that leave cannot be given for more than two years, except on specially urgent grounds and without pay. The Army List shows a very senior officer of the I. M. S. as on leave, in and out of India, for three years. This officer is serving under the furlough rules of 1875, not those of 1886. But we have always understood, apparently incorrectly, that the two-year limit applied to all leave under all rules.

We wish that a medical code, for officers in civil employment, were published, giving rules and regulations, for their guidance, especially on such subjects as *post-mortem* examinations and other medico-legal work, grant of medical and other certificates, fees, indents, returns, &c. Something in fact like the Jail Code, but much shorter and less elaborate. To be of real use, it would have to be officially published, so that a reference to it should be authority for any particular course of action. A young officer, coming into civil employment for the first time, cannot possibly be expected to know anything about office routine and procedure. Even a clerk cannot be expected to carry in his head the Circular Orders for the past thirty years or so. Such a medical code for the whole of India would be best, but a provincial code would be sufficient for all practical purposes. Such a code is in use in the United Provinces, but it leaves much to be desired in the way of completeness.

We hope that a second edition of Captain Boulton's little book may be called for, and in this hope, not in a spirit of fault-finding, we mention the following points.

A list of abbreviations is given at the beginning. The following are omitted —

Page 33 D C C = Double Company Commander
Page 77 L G C = Lieut General Commanding (?)
Page 104 E M W Accounts = Examiner Military Works Accounts

Page 145 P A = Private Affairs

Page 148 P V O & I V O = Principal, and Inspecting Veterinary Officer

There is also a table of errata, but we have noticed a good many misprints not included therein, as follows —

Page 23, line 5 detention for detention

Page 135(n) civilians for civilian

Page 160 (ix). british for British

Page 164, line 24 appointment for appointment

Page 164, line 25 full for full

Page 174, line 9 entitled for titled

RETIREMENT OF LIEUTENANT COLONEL GIMLETTE, I. M. S.

LIEUTENANT-COLONEL GEORGE HART DESMOND GIMLETTE, of the Bengal Medical Service, retired in April 1910, with an extra compensation pension. He was born on 8th September 1855, educated at St. Thomas', took the diplomas of M. R. C. S. and L. S. A. in 1877, and the degrees of M. D. and M. Ch. at the long defunct Queen's University of Ireland in 1879, and entered the I. M. S. as Surgeon on 31st March 1879. He became Surgeon-Major on 31st March 1891, Lieutenant Colonel 31st March 1899, and was placed on the selected list on 16th June 1905. He served in the Egyptian war of 1882, and was present at the action of Tel-el-Kebir, and the subsequent pursuit of the enemy to Zagazig, and received the Egyptian medal, with clasp, and the Khedive's bronze star. He was one of the batch of young officers sent to Egypt for service in the cholera epidemic of 1883 and soon after his return entered the Political Department, in which the rest of his service was spent, serving as Residency Surgeon successively in Nipal, Bandakand, and Haidarabad. For the last two years he had been on furlough. He was given the C. I. E. on 9th November 1901.

Lieutenant-Colonel Gimlette's retirement recalls to mind an episode of 1885, when he was Residency Surgeon, and *ex-officio* Assistant Resident, at Katmandu, in Nipal. In that year a revolution broke out in Nipal. The Resident, with

the greater part of his escort, was absent from Katmandu at the time, on his annual tour along the frontier, and Lieutenant-Colonel Gunlette, then a Surgeon of lately six years' service, was the only British officer at Katmandu. The revolution was successful. Several of the leaders of the party lately in power were murdered, some escaped to the Residency, where they took refuge. Their surrender was demanded, and refused. Fortunately the revolutionary leaders realised that an attack on the Residency, though it must have proved immediately successful, would bring them into conflict with the British Government, and had sufficient command over their followers to prevent such an attack. The fugitives were protected, and were subsequently passed down under escort into British territory, and received at Benares. The successful revolutionaries were recognised as the *de facto* rulers of Nipal by the Government of India, and allowed recruiting for the British Army in Nipal. The number of Gurkha regiments was soon afterwards doubled, a second battalion being added to each of the five Gurkha regiments previously in the army.

Current Topics.

INDIAN MUSEUM PUBLICATIONS

WE notice that Indian Medical Officers have been recently contributing to the *Memories and Records of the Indian Museum*.

Major F. Wall describes several new species of snakes of the genus *Dipsadomorphus*. The Editor of the *Museum Records* differs from Major Wall's conclusions and expresses the opinion that, "if every little difference between individuals or sets of individuals is to be regarded as of specific value, 'philosophical' zoology must cease to exist." If by 'specific value' Dr. Annandale means,—worthy of a name,—we can understand his objection to Major Wall's methods which must be embarrassing to many Naturalists, but we cannot agree with him if they imply that every little difference between individuals or sets of individuals must be overlooked as being of no specific value.

Captain R. E. Lloyd contributes a memoir which describes the deep sea fish taken by the R. I. M. Survey Ship *Investigator* since the year 1899, when Colonel Alcock's Monograph was published. By the same author there is a short paper which deals with the question of fertility and normality in rats. It appears that very large rats and very small rats are equally fertile with rats of average size. This would be contrary to the expectation of certain Biologists.

The results have been compiled from data afforded by the Officers of the Plague Commission at Belgaum and Poona.

Captain F. H. Stewart writes a memoir on the Anatomy of Investigator Sicarius, a Gephyrean worm which is the type of a new order. We must congratulate Captain Stewart on the skill with which he has elucidated the structure of so small an animal, particularly so because he had at his disposal only one specimen, and the method of enquiry by serial sections has peculiar difficulties in hot climates.

The question as to the systematic position of this worm will doubtless be of interest to speculative Morphologists. The question is discussed as to whether the remarkable position of the nerve chords is a character which is "above ordinal value" or not. It must be difficult to decide the true position of such a character upon a scale which exists only in the mind of the theorist. Such scales cannot be standardized.

Among the Miscellanea we notice some interesting observations on the rate of growth of barnacles. It appears that a clean buoy was placed in the sea on a certain day, and that eight days later two species of barnacles were found adhering to it, one of these was full-grown while the other was less than half its full size. It is assumed from this that the rate of growth of the one is more than twice that of the other. In our opinion there is no evidence for this assumption. The only conclusion that can be safely drawn from the facts appears to be that the full-grown specimen reached maturity in eight days or less.

BRAZILIAN INSTITUTE

In 1900, when plague visited Santos the Brazilian Government founded an Institute for the preparation of anti-plague serum, and Oswaldo Cruz was appointed to be its Director. The Institute now bears his name, and we have just received the first number of the *Memorias*, which has just been published regarding the work done by the staff.

The first memoir is by Giemsa and Godoy, who have devised an apparatus for the performance of ultra filtration in vacuo. Following Bechhold's lead, they use a solution of 3 per cent with which a Pukal candle, first cooled by means of ice, is coated, and through this by means of a water-air-pump the serum is drawn. Antidiphtheritic serum containing 150—200 I. U. filtered through this candle and thereby reduced from 300 to 100 c.c., contained in the concentration obtained 400—500 I. U., a very marked improvement from the therapists point of view.

Lutz and Neiva described a new Tabanid-fly, the *Erephopsis auricincta*, of which a beautiful plate is given.

Vasconcellos describes the method of immunizing horses with *B. pestis* that is followed at the Institute. In the early days the animals

first received a course of injection of dead slightly virulent germs, then of these alive and lastly of living fully-virulent germs. Now it is found sufficient to give first three injections of living slightly virulent germ, and then six of living fully-virulent germs. It has been found that the plague bacillus remains alive in the horse's blood for 24 hours after the intravenous injection, if the temperature of the animal has returned to normal within this time. de Beaujeu-Aragão describes a new amoeba—*A. diplomitotica*, of whose karyokinesis beautiful illustrations are given. And with Neiva he describes two plasmodia that are found within the erythrocytes of lizards. There again a beautiful plate makes the descriptions given easy to follow.

Neiva gives the results of his observations on the dipterous insects of Brazil and their relation to the endemicity of malaria.

Altogether a most interesting publication, and one that can be utilized by most workers to whom the language of Camoens is unknown, for each article has a translation in one of the three languages—English, French and German—alongside it.

Snake Bite in Bengal.

Lieut.-Col. Clarkson, I.M.S., the late Sanitary Commissioner of Bengal, reports—

During 1908, 263 cases of snake-bite were treated with permanganate of potash and 10 cases with anti-venom, the figures for last year being 198 and 17. With the former mode of treatment 214 or 81 per cent of the patients recovered, but with the latter the percentage of success fell to 60, only 6 out of the 10 persons so treated being cured. In Murshidabad 363 deaths were reported from snake-bite, but in only two cases the patients were taken to dispensaries for treatment. The Civil Surgeon says that this is the one fatality, for which the ordinary villager has no belief in the European method of treatment, his faith in the "ojha" or wizard being still unshaken. This remark equally applies to all other districts, and unless education makes sufficient progress among the masses prejudices like this are not likely to disappear. The District Board of Saran distributed several snake-bite lancets to presidents of chawkidari unions with permanganate of potash and instructions in regard to their use, and Mr B. A. Collins, Sub-divisional Officer of Gopalganj carried the experiment further by collecting and instructing the village *hajams* or barbers of each thana, one hundred at a time how to use their *nakhun* knives and apply permanganate of potash in cases of snake-bite. They took a most intelligent interest in the experiment, and the Civil Surgeon says that according to the reports received from the presidents 80 per cent of the cases treated were successful. Similar practical demonstrations

can be very usefully held by many touring officers, and I am addressing Civil Surgeons on the subject. In Palamau, 180 persons were bitten by snakes and the Police treated 170 of them with permanganate of potash resulting in 139 recoveries. The Civil Surgeon, Dr. Hondley, thinks that the proportion of persons treated to those bitten appears too good to be correct. It appears that in many cases patients are not brought to the dispensary immediately, but after there had been some delay, and this will account for several failures.

TREATMENT OF DIABETES

IN a review of his own experience V. Noorden expatiates on the great progress realised in adapting the diet to the individual tolerance of the patient. His experience includes about 3,000 cases of diabetes during the last fourteen years, and with careful individualisation the prognosis of the disease has been materially improved. Several hundreds of his patients, under observation for more than seven years, have been kept free from glycosuria by changing their diet occasionally, according to metabolic findings, and they are all now in good health and free from any complications. Most of them must still be regarded as diabetics, as any carelessness in taking too much carbohydrate would certainly bring on glycosuria again. Of course, it is impossible to keep the diabetes under control in every case. This is due in part to the malignancy of the process affecting the pancreas, but it is specially remarkable that in the cases with a rapid course, for example in children and in young people, it is often impossible to detect any structural change in the pancreas. Under the age of 30, glycosuria may occur for a time and then subside, he has observed this after acute infections, but when the diabetes appears in the form of severe glycosuria, persisting in spite of change of diet, with considerable amount of ketone bodies, the prognosis is almost invariably very grave. The same occurring in older persons is of much less serious import, and he has several hundreds of elderly patients who have been kept free from glycosuria for more than five years and are in excellent general health and strength on their careful and regulated diet. These cases are much more numerous than is generally supposed, while in the young this form is extremely rare. Everything depends on the systematic dietetic measures being instituted early. The whole future of the diabetic is determined by the management of the case during the early stages, except in really malignant cases.

It is difficult to persuade the diabetic of the necessity for energetic measures during this early stage, for the disease has an especially dangerous deceptive property of leaving the general health unimpaired for several years,

and this is a constant temptation to disregard the needed precautions. In nearly every case the glycosuria occurs transiently at first, and is explained as a harmless alimentary or nervous phenomenon, but these so-called transient glycosurias become transformed later, if neglected, into true progressive diabetes.

Not until every case of glycosuria receives the attention it deserves, and not until every diabetic has his diet regulated to conform to the individual indications, will the patients share in the benefits which are possible with appropriate dietetic therapy. Not until then will it become generally recognised that the prognosis of diabetes can become far more favourable than is the case at present with the ordinary routine measures (*Journ Am Med Assoc, Extract from Medizinische Klinik*).

THE CAUSE OF ANAPHYLAXIS

ALL are agreed as to the peculiar phenomena that are observed when supersensitiveness to a foreign proteid has been caused, either actively or passively, in an animal, and that animal receives a second (in the case of passive supersensitization, the first) dose of the proteid. As to the explanation of the facts observed, serologists are, however, by no means in accord. Friedberger long ago advanced the hypothesis that the phenomenon of complement-deviation is due to the formation of an invisible precipitate as the result of the inter-action of antigen and antiserum, and that it was this precipitate that absorbed the complement. The experiments of others—notably Mun and Martin—did not seem to afford confirmation of the correctness of this hypothesis at the time. Recently it has been reported by Friedberger and Hartoch that there is a marked diminution of the amount of complement, which is normally present in healthy guinea-pigs, when the symptoms of anaphylaxis have been called forth, and that when the animal has been supersensitized passively, this diminution may be so great as to lead to the total disappearance of complement. Doeri and Russ, working with dogs, have observed the same lessening, or disappearance, of complement.

Friedberger believes that the antibodies, whose manufacture by the organism is excited by the introduction of the foreign proteid, are sessile receptors which become fixed by appropriate cells—especially the brain-cells. When the animal is passively supersensitized, *z. e.*, when it receives injection of the serum of an actively supersensitized animal, its brain-cells at once fix these receptors. Then, on the introduction into the circulation of the antigen, the compound antigen-antibody is formed, with a precipitate, and the complement of the animal's serum is absorbed by this precipitate. The merits of the hypothesis will at once be clear to our readers. If it be correct, then what is

observed *in vitro*-precipitation, and complement-deviation—differs from what is observed *in vivo*-anaphylaxis—in degree only, and not in kind.

That even if the hypothesis be correct, we have not got to the end of our journey of investigation of the dark domain of serology is obvious, when one remembers that the formation of antibodies to vaccines does not call forth anaphylactic symptoms, although one must suppose that in these vaccines proteids are present. Nor is the recently-observed fact, that in babies complement is absent during the first months of life easily explained. It is fairly certain that it is the architecture of the proteid-molecules that conditions the effects produced by them. Wherein the differences between the architectural arrangement of proteid-molecules, *a, b, c*, etc., consist we may know some day. Here the bio-chemist will be our informant.

BURMA BRANCH OF THE BRITISH MEDICAL ASSOCIATION

THE annual meeting of the Burma Branch of the British Medical Association took place in Rangoon on the 2nd, 3rd, 4th and 5th February. Two large wards in the New General Hospital were especially prepared for the occasion. One was used as a museum and exhibition and the other was arranged for the meetings of the medical and surgical sections.

The Presidential address was delivered by Colonel King, CIE, I.M.S., President of the Branch, at 9-30 P.M., on the 2nd February. Quite a considerable number of members were present, including many Civil Surgeons who had come in from their districts.

Colonel King's address and papers read at the meeting will be found in the special supplement issued with this number.

CATARACT EXTRACTION IN THE CAPSULE

DR ARTHUR NIVLE sends us the following contribution to the discussion of Cataract Extraction in the Capsule, which pressure of work prevented him from sending earlier—

I am an advocate of this operation. It is more risky at the moment of operation and more difficult, and should only be attempted by those who get a high percentage of success by the capsulotomy method and have done at least 50 extractions. It should not be attempted (a) when there is plus tension, (b) where there is a small cornea or anterior chamber, and a large lens, (c) when the iris is adherent to the capsule, (d) if the patient is very unsteady, (e) if for any reason the corneal incision is obviously inadequate.

When the operation is technically satisfactory, the result is usually more free from complications and more successful visually than after capsulotomy. I have not found really small vitreous loss any serious drawback, and with experience the proportion of cases in which there is any show of vitreous should not exceed 10 per cent.—*Medical Missions, India*

ON return from furlough Lieut-Col Buchanan has resumed the Editorship of the *Indian Medical Gazette* and Capt D McCay, FRS, has gone on long leave

Reviews

The Morphia Habit and its Voluntary Renunciation—By OSCAR JENNINGS, M.D. (Paris) London: Baillière, Tindall and Cox. Paris: Bientano, 1909. Price, 7s 6d

As the author has had very great experience in the treatment of morphia-addicts, this work will interest all those of our readers who have ever met with such cases in their practice—and who has not?

The treatment adopted varies with the case, of course, but the author's sheet-anchor is what, he calls the physiological treatment by means of the "therapeutic triad"—Antacids, spartiene, and Turkish baths. He is strongly in favour of Vichy water (Célestins), and sodium bicarbonate as means to combat the hyperacidity which—*pace* Allbutt and Rolleston—he, as well as many who have had much experience of these cases, says is characteristic of the morphia habitué.

Violent purgatives he eschews. Dionine has in his hands been of much service, but if not carefully watched the patient may become addicted to its use, when he has given up morphia. Cocaine he has found to be a two-edged sword, as have others.

Altogether an interesting book, as it shows how much may be achieved when even a morphia-addict is trusted by his physician and really desires to be rid of his craving.

The Edinburgh Stereoscopic Atlas of Obstetrics—By SIMPSON AND BURNET. Section IV, 1909.

THIS section completes this most valuable series of stereoscopic views of the different obstetric conditions. The present list contains 25 beautiful plates, including the different presentations and positions of the coming foetus, caesarean section, placenta praevia, abortion and certain abnormalities. The photographs are quite up to the standard of the previous sections and reach a very high order of excellence.

Mendel's Principles of Heredity—By W. BATESON, Cambridge University Press. 12s.

NEARLY fifty years have passed since Mendel discovered to his own satisfaction, the manner in which the qualities or characters of a parent organism are conveyed to its offspring. This discovery lay unnoticed until a few years ago, when the facts, previously known to Mendel alone, were re-examined and tested by several independent workers. These primary facts were

found to have such a wide application in nature, that it became evident that many of our views concerning the nature of living things must be reconstituted. In testing and widening this discovery Professor Bateson has been the foremost among Biologists in Great Britain. The book under review is therefore the standard work on this important subject, in the English language.

The scope of the present work is well shown in the following passage:

"After such a discovery it is obvious that old ideas must be revised. Systematists debating the limits of 'specific rank' or the range of variability, morphologists seeking to reconstruct phylogenetic history, physiologists unravelling the interaction of bodily functions, cytologists attempting to interpret the processes of cell-division, each of these classes of naturalists must now examine the current conceptions of his study in the light of the new knowledge. The practical breeder of animals or plants basing his methods on a determination of the Mendelian units and their properties will in many of his operations be able to proceed with confidence and rapidity. Lastly, those who as evolutionists or sociologists are striving for wider views of the past or of the future of living things may, by the use of Mendelian analysis, attain to a new and as yet limitless horizon."

Although from a practical standpoint we can scarcely, at present, consider the question of the elimination of hereditary diseases, we may say that any attempts which are made in this direction must be guided by Mendelian principles.

The medical student of the future will include "Mendelism" among his biological studies.

To any one who wishes to enquire into this interesting subject, we may confidently recommend this book.

Synoptic Chart of Cardiac Examination—By I. D. COMBRIE, M.A., M.B., etc. Messrs John Bale & Sons, and Danielsson, London.

THIS ingenious chart for showing the signs and symptoms of thirteen heart lesions is made from cardboard sheath containing inside a sliding sheet of cardboard. On the sheath is an outline of the chest, while on the sheet are printed the several heart lesions with the physical signs. Holes cut in the sheath at the proper places permit of the different diseases with their respective signs appearing as the tapes above and below are manipulated. Besides this fuller information of the signs and symptoms will be found in a small pamphlet in an envelope attached to the back of the chart.

We have no doubt this chart will be found most useful in the teaching of clinical medicine to junior students. We have made over the chart to the Medical College and its use in the heart examination room of the out-patient department is already much appreciated. We

have nothing but praise for this very simple and effective method of quickly combining the concise knowledge tabulated with the clinical examination of the patient

Aids to Forensic Medicine and Toxicology — By WILLIAM MURFLL, M.D., F.R.C.P. Seventh Edition, p 123 Published by Baillière, Tindall and Cox

THE appearance of the seventh edition of this little book which is one of the Students Aid Series testifies to its popularity and as a cram book for students should be useful before an examination when there is no time to again cover the ground of the large text-books on these subjects. The book is well up-to-date and written in an attractive style, several new acts bearing on Medical Jurisprudence are mentioned.

The section on Toxicology in a book of this kind is necessarily very brief, but a lot of information is given in a small compass.

Rational Immunisation in the Treatment of Pulmonary Tuberculosis — By E. C. HORT, B.A. B.Sc., M.R.C.P. John Bale, Sons and Daniels son, London, 1909. Price 3s 6d.

IN this work are set forth the grounds of a method of treatment of pulmonary tuberculosis, which appears to the author to be rational. The work is one which to our mind should be read by every medical practitioner. The arguments which are interesting we shall attempt to epitomize here. — As it is admitted by all authorities that the incidence of tuberculosis in general, for it has been held by many that nearly every European that reaches the age of puberty has received infection which is demonstrable during his life or after death, it is obvious that, if the mortality be only in the proportion of 55,000 *per annum* for the British Isles, many cases must recover from the disease. Now as but few of these have been treated by means of hetero-inoculation (tuberculin) it follows that some factor other than this has been at work to enable them to withstand the infection. In most of the cases of recovery this factor has been auto-inoculation by the products of the focus of infection. This auto-inoculation may be spontaneous, as the result of (1) free communication through the lymph stream, (2) inflammation, (3) movements voluntary or involuntary. Or it may be artificial, as the result of anything that induces hyperæmia, (a) counter irritation, (b) Bier's hyperæmia, (c) active and passive movements, (d) light and heat, (e) respiratory exercises, (f) radium and Röntgen rays, (g) high altitudes.

The advantages of auto-inoculation over hetero-inoculation are these: (1) no danger of the addition of fresh toxins to those already present, (2) no danger of accidental sepsis, (3) no operative interference, (4) no need of care-

ful determination of the particular organisms concerned, and therefore less expense, (6) dosage is much easier than in the case of laboratory products, (7) the supreme importance of general treatment is not lost sight of, as a means of improving cell-nutrition and cell-restraint. By cell-restraint Hort means the restraint which the cell must exercise over its intracellular enzymes, to prevent these from bringing about autolysis of the cell. When the cell is healthy this restraint is in force, but when the cell has been attacked and damaged by the action of microbes or their toxins it has to deal with abnormal enzymic metabolic products, and its power of restraint over these is impaired. It can of itself only return to a normal state by exciting in the lymph that supplies it, a responsive reaction—[in the shape of the production of cellulose-tropic bodies, it would appear]. Merely to promote cell-nutrition will not result in ensuring cell-restraint. All that general treatment can do is to help the organism to respond stimuli from within as well as from without—to enable bacteria and cells to excite bacterio-tropic and cellulose-tropic restraint on the part of the organism.

To estimate the effects of auto-inoculation in practice the author recommends that the evening temperatures in a case of pulmonary tuberculosis should be plotted on a chart, the curve thus obtained being, he considers, a good indicator of the response made by the patients' organism to the stimuli received. In this he differs from Wright who believes that rise of temperature means intoxication and not immunization. From Wright he differs too by holding that the tuberculo-opsomic index is of no value. No two observers agreed in the estimation of specimens of the same serum, and often an observer gave different estimates, for two specimens which unknown to him represented the same serum. In his article in the *British Medical Journal* of February 1909, Hort remarks that 'If there is a satisfactory answer to these results, no doubt it will be forthcoming.'

The auto-inoculation is therapeutically induced by causing artificial hyperæmia of the lungs by the use of a special form of spirometer for 15 minutes at a time, at the connect phase—the response being carefully watched.

The advantages of auto-over hetero-inoculation are the avoidance of operative measures, danger of accidental sepsis, and introduction of new toxins, with cheapness, and the facts that no troublesome estimate of dose of laboratory products or determination of special organisms is required.

On the value of the estimation of the anti-typic or, as it ought to be called, antitypic index of the patients' serum Hort lays great stress. If the index be high then the patient will react little if at all to artificial hetero- or auto-inoculation.

Erythema A Disease of the Skin—By Hospital Assistant C G DHANDHUKIA, I S M D, Bombay, The State Press, Bhavnagar and British Indian Press, Bombay

IN this little work the author has collected together in a concise form the different kinds of erythema to be met with and has set forth what he considers the most successful ways of treating the condition. He tends to look on erythema as a disease and continually speaks of it as such whereas it can really only be considered a physical sign of some underlying condition. He has collected over fifty different forms of erythema—the great majority of which are known to the profession under their own particular names. The little book shows many signs of painstaking labour in its compilation and reflects great credit on the energy and patience of the author.

Notes on Soured Milk and other methods of administering selected Lactic Germs in Intestinal Bacterio-Therapy—By ELIE MERCHNIKOFF, Pasteur Institute, Paris. John Bale, Sons & Danielsson, Ltd, 1909, Price, Re 1

THE remarks made by Metchnikoff on curdled milk at the Congress on old age caused such numerous requests for further information that the author has taken the opportunity of giving publicity to the chapter dealing with the question of curdled milk in the work upon which he is at present engaged.

A complete account of the present state of our knowledge on this subject, for the greater part of which we are indebted to Metchnikoff, will be found in the twenty pages of the chapter now published.

The principle underlying the treatment by lactic acid germs is very simple. Food is known to exert a very decided influence on the intestinal organisms—the flora varying with the nature of the food. This is due to the fact that certain bacilli secrete substances which render the soil unsuitable for others, so that by selecting an organism which is innocuous to human beings, we are enabled to oust alien germs productive of injurious effects. The purpose of lactic acid germ treatment is to introduce the harmless lactic acid bacillus which, once thoroughly acclimatized, is able to kill off or prevent the growth of other bacilli whose products are capable of injury on absorption. The effect has to be kept up by giving either the germs in tablets or powders or, more simply still, in form of milk that has been curdled by the lactic acid bacillus. By starting the process with the inoculation of a bowl of milk, successive inoculations can be carried on twice or thrice a day and from day to day indefinitely, so that the treatment is not only simply carried but with proper precautions, a palatable dish is added to the daily diet.

Marked success has attended this line of treatment in condition of auto intoxication and also in the most varied affections.

A full account of the work done on intestinal bacteria-therapy is given in this little pamphlet which will well repay its perusal.

The present Status of the Leprosy Problem in Hawaii. The Reaction of Lepers to Moro's "Percutaneous" test. A note upon the possibility of the Mosquito acting in the transmission of Leprosy—By W R BRINCKERHOFF, S D, M D. Director, Leprosy Investigation Station, Hawaii Treasury Department, Public Health and Marine Hospital Service, America.

THESE studies of Leprosy are of the utmost importance as they tend to show that despite the more or less vigorous enforcement of segregation, leprosy has increased among the Hawaiians and is becoming more or less disease of the inhabitants of the territory of other races. The important conclusion to be drawn from this is that Leprosy in Hawaii will not continue to be a problem related to the native races only, but will persist and become a menace unless some effective means be devised to check its spread.

The author concludes that the "percutaneous" tuberculin test of Moro is of no value in the differential diagnosis of leprosy and tuberculosis, and suggests that a more extended trial should be given to the tuberculin treatment of leprosy.

He further shows that the female mosquito defaecates at the time of biting and suggests that it may therefore act as a carrier of infection in a manner similar to the flea in plague.

Publications of the Research Defence Society, March 1908—March 1909—Selected by the Committee. London, Macmillan & Co, 1909.

THIS volume ought to be in the hands of all thinking men and even in the hands of some "antivivisectionists," for we cannot believe that all who oppose experiments on animals are wedded to scientific truth as loosely as are the Hon Stephen Coleridge, Arabella Kenealy and a certain respectable Deputy Surgeon General whose name will doubtless at once occur to our readers.

In all countries men of all creeds and shades of political opinion are, so say the Coleridge party, in error in thinking that experiments on animal are needful and therefore right. Far better that many human beings should perish than that one mouse, one rabbit or above all one dog should "suffer agony" at the hands of the ruthless experimenter, whose sole object is not to further science, not to help humanity, but to gloat over the suffering caused by his hellish torture methods. Can any fair minded man say that this is not the gist of the antivivisection arguments?

The answer to these may readily be found in the book now before us. More particularly

would we call our professional readers' attention to Dr Cuthny's concise exposé of the value of experimentation in pharmacology. Briefly he shows that no soporific has been introduced in the last forty years, no local anæsthetic has been discovered, nor has any vascular dilator or vascular constrictor been discovered without animal experiments, which for the standardization of drugs such as digitalis, ergot and cannabis indica are absolutely necessary, no other means being known whereby the activity of these drugs may be properly estimated. Sir David Bruce's terse account of the investigation of Malta fever even a layman could grasp. And Lord Justice Fletcher Moulton's evidence before the Royal Commission is a model of what evidence should be, and shows that eminent judge's scientific attitude of mind. It is not every legal luminary who can apply the basis of English Law—sound common sense—to matters of science—witness the egregious scion of the house of Coleridge.

Out here, thanks to the highly educated Powers that Be, we have no need of demonstrating the benefits of experiments on animals. At Home they still wallow in the darkness—so it is refreshing to find a Lord Justice hinting that scientific men of eminence should be under no restrictions as to the researches which they choose to carry out.

Atlas and Epitomy of Ophthalmoscopy—By Prof Dr O HAAB, Zurich. Second American Edition from his fifth revised and enlarged German Edition. Edited by Dr G E deSchweinitz, with 152 coloured lithographic illustrations. Philadelphia and London W B Saunders Company, 1909.

THIS well known and excellent Atlas has again appeared with six new plates and several new pages of text. It is as handy and useful as ever, should be the pocket book of every student of Ophthalmology, nothing can be more instructive than the minute description of each plate which shows the student how much there is to see that he generally overlooks, while the text forms quite a good textbook of diseases of the fundus. Haab's Atlas promises to ever remain not only the pioneer but the best of its kind.

Atlas of the External Diseases of the Eye—By Prof Dr O HAAB. 3rd Edition. Edited by Dr G E deSchweinitz, pp 244 with 101, coloured lithographic illustrations on 46 plates. Philadelphia and London W B Saunders Company, 1909.

THIS excellent companion Atlas to that on Ophthalmoscopy by Prof Haab has been revised throughout in this new edition and six new plates added, as well as several new figures in the text. It is an admirable guide to External Diseases of the Eye and is of the greatest possible use to the student.

A Manual of Midwifery for Students and Practitioners—By HENRY JEWELL, M.D., F.R.C.P.I., L.N., King's Professor of Midwifery in the School of Physic, Trinity College, Dublin, etc., with the assistance in special subjects of W R Dawson, M.D., H C Drury, M.D., T G Moorehead, M.D., and R J Rowlett, M.D. Second Edition, with 17 plates and 557 illustrations. Messrs Baillière, Tindall & Cox, 1910. Price, 21s net.

THIS book is too well known over the English-speaking world to require any lengthy dissertation on its merits.

It is now the standard work on the subject and is used very largely by both practitioners and students.

In preparing this second edition, the author has kept as closely as possible in touch with all the recent advances in the theory and practice of midwifery. The text has been thoroughly revised and much new matter added, more particularly on the auto-intoxication of pregnancy, pubiotomy and vaginal cesarean section.

Many of the old illustrations have been replaced, thus we have new sets of drawings illustrating the chapters on Obstetrical Anatomy, a completely new set illustrating the mechanism of labour in the different presentations and new drawings showing the application of forceps, pubiotomy, vaginal cesarean section and cesarean section.

The Manual is beautifully got up by the publishers and is, without doubt, the most complete and finest book on the subject on the market. We offer our congratulations to all concerned in its production. As it is a book every student of the present day reads its success is assured.

Diet in Health and Disease—By JULIUS FRIDENWALD, M.D., and JOHN RUHRAB, M.D. Third Edition. Messrs W B Saunders Company, 1909.

THE new edition of this popular book on Diet in Health and Disease has been thoroughly revised and brought up to date. It is a practical handbook for every day use and is most valuable to the practising physician. The articles on milk and alcohol have been rewritten and many additions made since the appearance of the second edition in 1906. Information will be found on the salt-free diet and how it may be accomplished, rectal feeding, the cationic needs of the infant and much other useful information is now included for the first time.

The volume now consists of over 750 pages and includes a really useful and comprehensive index—a most important consideration in a practical handbook, such as this is. We have no hesitation in saying that practitioners will find this book an exceedingly useful and practical guide in the dieting of patients and an important aid in treatment. As would be expected the publishers have done their share of the work in a manner that would be difficult to improve on.

The Illustrated Medical Dictionary—A new and complete Dictionary of the terms used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, Nursing, and Kindred Branches, with the Pronunciation, Derivation and Definition. By W. A. NICHOLSON DORLAND, A.M., M.D. Fifth Edition, revised and enlarged. Messrs W. B. Saunders Company, 1909.

THIS well known and popular dictionary does not require much recommendation in these columns, as it is a book most medical men are already well-acquainted with.

Since the publication of the fourth edition the literature of medicine has been carefully gleaned, and, as a result, more than 2,000 new terms have been added. The majority of these words appear for the first time in any dictionary. The entire book has been revised and many of the definitions have been re-written and improved. A special feature has been made of new words in the realm of biology, particularly in the terminology of parasites. The pictorial features of the book enhance its value very considerably. These have been added to in the present edition.

The volume is very attractively got up and the size is convenient for constant reference. We have found Dorland's Dictionary of the very greatest service as a sure source of information on all subjects connected with medicine. Of its popularity with the profession there is no better proof than the fact that within ten years five new editions have been called for, and no less than eleven reprints have been found necessary. It is a book well worthy of the success it has attained and one that should be on the desk of every practitioner.

Exercise in Education and Medicine—By R. TAIT MCKENZIE B.A., M.D., Professor of Physical Education and Director of the Department, University of Pennsylvania, etc., with 346 illustrations. Messrs W. B. Saunders Company, 1909.

THIS new work on the most important subject of physical education will, we are certain, meet with general support. Its purpose is to give a comprehensive view of the space exercise should hold in a complete scheme of education and in the treatment of abnormal or diseased conditions. The extravagant claims of self-styled professors of certain symptoms of physical culture have done much to retard the application of the results of physiological research to the proper harmonisation of exercise to the different conditions met with in health and disease.

It is of great importance that the student of physical training should have a broad and catholic foundation on which to build the structure of his experience, and that he should consider and balance the merits or limitations of systems and ideas coming from diverse lands. It is to meet this want the book has been written, and we have no hesitation in saying that the author has admirably succeeded in what he has undertaken. The book is divided into two parts

exercise in education and exercise in medicine. Both give full accounts of the principal systems in use for the proper development of the body and for the correction of abnormal conditions. The numerous photographs are of the greatest service in illustrating the meaning of text and enhance the value of the book very considerably. We can strongly recommend this new book to the profession as a sound, clear and careful account of the advances made in the science of the application of exercise in health and disease.

International Clinics—A Quarterly of Illustrated Clinical Lectures and specially prepared Original articles on Medicine and its Branches by the leading members of the Medical Profession throughout the world. Edited by W. T. LONGCORE, M.D. Vol. III, Series 1909. Messrs J. B. Lippincott Company. Philadelphia and London.

THE present volume of this admirable series contains special articles—on the treatment of tuberculosis by Franchine, on the present position of antitetanic serotherapy by Lagane, on Mesmer and Perkins's tractors by Waterson. In Medicine we have very fine articles on clinical observations in five hundred cases of typhoid, Greave's Disease, Raynaud's Disease and some of the allied forms of Vasomotor Disorder, Gonococcal Septicæmia and the association of migrating Thrombo-Phlebitis with Thrombo-angitis Obliterans.

In the section on surgery there are articles on Exophthalmic Goitre, some Post-operative complications, a study on the Pathology and surgical treatment of Bilocular stomach, and early and complete resection of varicose veins of the leg. Obstetrics, Gynaecology, Orthopaedics, Paediatrics, Radiography, Otology, Neurology, Ophthalmology and Pathology have all been included, and many excellent papers are produced. One of the most interesting will be found under the Section on Paediatrics—Hirschsprung's disease or idiopathic dilation of the colon. Two photographs illustrating the condition are of special interest.

The volume is a very interesting and instructive one and contains articles of great value. The radiographs of the conditions met with in gastro-enteroptosis are exceedingly good and admirably illustrate the sagging of the intestinal tract.

(1) BIBLIOGRAPHY OF TRYPANOSOMIASIS, compiled by C. A. THUMM, Librarian, Sleeping Sickness Bureau.

(2) DISTRIBUTION OF TSETSE FLIES AND SLEEPING SICKNESS, Sleeping Sickness Bureau.

The above works issued by the Sleeping Sickness Bureau of London will be of great value to all engaged in the study of Tropical Medicine. The bibliography contains a complete list of references to the published works on Sleeping Sickness and the Trypanosomiasis of man and animals from 1803 to March

31st, 1909, it includes also references to recent papers on the Tsetse Flies

BERI BERI* In this valuable research, Fraser and Stanton have confirmed the important investigations of Braddon on Beri Beri. They carried out a series of careful observations on parties of indentured labourers employed on road construction. As a result of their investigations they reached the conclusion "that the disease Beri Beri as it occurs in this Peninsula has, if not its origin in, at least an intimate relation with white rice, and justify further research along these lines." They made systematic examinations of the blood and urine of patients suffering from Beri Beri, "but in no instance were any organisms found except those well known as the causative agents of other diseases." From their observations they conclude that Beri Beri is not directly communicable. Further "removal of entire parties from the place where the disease occurred did not influence the progress of the outbreak so long as they continued on white rice," and "these experiments suggest that place *per se* or considered as a nidus of infection has no influence on the development of Beri Beri." Further they state "that no evidence was obtained to show that any article of food other than white rice was a possible source of a causative agent of the disease." It is interesting to note that it required 87 days at least on white rice before symptoms of Beri Beri developed. The above investigations have advanced our knowledge considerably regarding the difficult problem of the etiology of Beri Beri. The authors will submit in a subsequent number of the studies the results of their exhaustive chemical analyses and microscopic observation of samples of the rices employed in this enquiry. This Report will be looked forward to with much interest.

ANNUAL REPORTS

NOTES AND STATISTICS ON HOSPITALS AND DISPENSARIES IN BURMA FOR THE YEAR 1908

In Civil Hospitals there were treated, during 1908, 1,055,774 out patients against 997,812 in 1907, and 50,274 in patients against 45,548 in 1907. There was thus an increase of 4,726 in patients and 87,932 out-patients. The increase was fairly uniform throughout all hospitals, but the attendance was notably large at Akyab, Kyaukpadaung, Rangoon, Prome, Henzada, Moulmein, Thayetmyo, Mandalay, Shwegyin, Sagaing, Maymyo and Hsipaw. A satisfactory feature of the total increase of 92,658 is shown in the better attendance of Burmese, which amounted to 57,295 including 12,991 adult females and 15,593 children. The absence of a reasonably proportionate attendance of Burmese females has always seemed to me an undesirable feature in the statistics of this Province, and I believe this successful result must be ascribed to increased efforts of medical officers in regard to securing reasonable privacy in out patient and dressing rooms. This good cause has been helped by the use of Lady Doctors. Their work at Moulmein, Mandalay, Rangoon and Bassein is much appreciated

* An inquiry concerning the etiology of Beri Beri by Henry Fraser, M.D., and A. T. Stanton, M.D., Studies from the Institute for Medical Research Federated Malay States, No. 10

by the general public. The percentage of Burmese to total treated in these out patient dispensaries was 45, 53, 27 and 62 per cent, respectively.

In addition to the numbers included in the above totals, there were amongst the Military Police 106,255 in and out patients against 101,838 in the previous year, and in Rail ways Hospitals and Dispensaries (which the exception noted in paragraph 2 were administered by this office), there was a further number of 18,201 patients against 61,116 of the previous year. Again, in private non aided dispensaries, a total of 11,731 patients was treated. It will be therefore seen that the total patients dealt with by the Medical Department of the Province for 1908 amounted to 1,320,929. More over, this total does not include a large number of prisoners treated by medical subordinates when on escort duty amongst hill tribes. Arrangements are being made to secure what should be interesting statistics from these subordinates in future.

The number of surgical operations performed increased from 27,206 in 1907 to 31,076 in 1908.

In considering the bulk of operations when compared with other Provinces, it must be remembered that calculus of the bladder and catarrh, which account for large numbers of operation elsewhere in India, are apparently not largely present in Burma. My special endeavour had been to secure attention to operations on the eye. The resulting increase is but slow yet evident. Thus, there were, in 1908, 476 operations on the eye and its appendages against 337, in 1907. In the meantime, an eye department has been organized in the General Hospital, Rangoon and in the Princess of Wales' Ophthalmic Wards in Mandalay. There was an increase of 21 operations by various methods for calculus of the bladder. Obstetric operations showed a satisfactory increase of 123 cases.

By way of compensation (from a surgical point of view) for absence of catarrhs and calculi, the number of "injuries" received in Burma from assaults is, I think unusually large. Thus, there was a total of 80,291 "injuries" of which it is recorded that 13,788 were matters for Police enquiry. This excludes results from hospitals in the Chin Hills. For many years, a very regular source of operative surgery for the Rangoon General Hospital has been the nine miles of the Rangoon to Insein Railway line. During 1908, it supplied 47 cases of injury besides 25 dead bodies. Doubtless cases were also treated at the Insein Railway Hospital of which no record has reached me.

I consider the excellent surgical work performed by the following medical officers during the year to be worthy of special notice, namely, Lieutenant Colonel Evans, I.M.S., Major Dyer, I.M.S., Major Dea, I.M.S., Captain Whitmore, I.M.S., and Captain Williams, D.S.O., I.M.S. Another medical officer whose name I think it right to bring to notice is that of Miss Sexton, Superintendent of the Dufferin Hospital. She is not under my control, but I receive returns of results secured by her. She performed 26 operations that may be fairly classed as major. Although as yet, as a result of the unfavourable views worked in the nature of the operations performed by them does not warrant my including their names in the list, Major Hammond, I.M.S., and Lieutenant Colonel Crator, I.M.S., both deserve credit for the manner in which they have endeavoured successfully to secure an increase of surgical work in their hospitals.

The presence of Malta fever at Magwe was brought to notice by Captain Walker, I.M.S., and in Rangoon, by Captain Whitmore, I.M.S.

Six thousand eight hundred and seventy seven cases of goitre were treated, the chief localities being Pakokku, Myittha, Bhimo and Upper Chindwin. The use of thymol, thymus and thyroid gland preparations are being pushed as far as feasible, but it is too early to state whether any definite result has been secured. In the meantime, the sufferers appreciate the use of preparations of iodine.

BURMA SANITARY ADMINISTRATION REPORT

No further progress in the development of the scheme for a Provincial Service of Registered Sanitary Inspectors has been recorded during the year under review, the proposals are with the Government of India. The want of a staff of properly trained Sanitary Inspectors is felt in every town and district throughout the country, and militates very seriously against the advance of sanitary progress, as much, indeed, if not more than, the lack of funds. For the efficient direction of Conservancy and the enforcement of the provisions of the Municipal Act, as well as for the care of minor Sanitary Works, trained men of this class are essential, and at present there are none in the country, with the exception of a few Indian Sanitary Inspectors trained in Madras. It is generally agreed that for work among the Burmese population, which predominates in all, but the largest towns and in all rural areas, Sanitary Inspectors of their own nationality are a necessity, and that this necessity is becoming very urgent.

Major N. P. O'G. Lalor, I.M.S., filled the post of acting Deputy Sanitary Commissioner from the beginning of the year up to the first week in June.

Major Lalor proved to be a most useful assistant in the office, and a capable district officer when on tour. At the end of May he proceeded to the scene of the cholera outbreaks at Prome and Yenangyang, and by his personal efforts induced the local authorities in those districts to experiment with the use of Norton's tube wells, which further experience has shown to be admirably adapted for the purpose of supplying water for domestic use in localities bordering on the Irrawaddy river, wherever an outbreak of cholera has placed the well water under suspicion. A wide field of usefulness for this form of tube well appears to have been opened as the result of Major Lalor's initiative.

Several officers of the Provincial Civil Medical Department are deserving of mention in connection with important services rendered by them in the cause of sanitation. Major J. Enticman, I.M.S., continued to superintend the preparation of vaccine lymph for the whole Province at the Meiktila Vaccine Depot and to perform other duties in connection with the Vaccination Branch of the Department, and the training of Vaccinators, until compelled by illness to take leave to Europe in December. Captain J. Good, I.M.S., then assumed charge of the Meiktila Vaccine Depot and training school, and continues to maintain the work of the institution at the high level to which it was raised by the efforts of Major Enticman.

Major Hammond, Civil Surgeon at Tharyomyo, has shown much energy and initiative in experimenting with and devising a type of refuse incinerator capable of disposing of the town night soil, together with a portion of the garbage collected by the conservancy establishment. Major Hammond has also devised a special form of latrine admirably adapted for use by the poorer classes of Burmans, and this pattern with such modifications as further experience may suggest, is, I think, destined to come into use in many parts of the country.

Other patterns of refuse and night soil incinerators have been devised and brought into use by Major Dee, I.M.S., Civil Surgeon at Bassein, Mr. L. G. Fink, Civil Surgeon at Myitkyna, and Mr. Hollingsworth, Civil Surgeon at Myingmya.

The excellent work performed by Captain J. Good, I.M.S., at Mogoke, and by Mr. L. G. Fink at Myitkyna, for the prevention and amelioration of malarial fever, is referred to.

Captain Br. Ket, I.M.S., acted as Special Plague Medical Officer during the year, and submitted some excellent reports on the sanitary conditions associated with the prevalence of plague in various localities in the Province. During the greater part of the year he was engaged in touring the country and delivering a course of lectures on the cause of plague and the rationale of the preventive measures adopted by Government for the suppression of the disease. These lectures were greatly appreciated by the better educated among the natives of the country, and all Government officers with whom he came in contact speak highly of the efficiency with which Captain Br. Ket performed his duties, which were often of a very exacting nature.

Captain L. A. H. Lack, I.M.S., was employed on special plague duty in the latter part of the year, and was appointed to the executive charge of plague measures at Mandalay at the close of the year, an appointment for which his previous experience, and the manner in which he had carried out the duties entrusted to him, proved his fitness.

I have to thank Captain H. G. Knapp, I.M.S., Superintendent of the Rangoon Central Jail, for the trouble he has taken in perfecting the manufacture of quinine in the jail. I also desire to acknowledge the ungrudging assistance rendered me by the Civil Surgeons of all the districts I visited during my tours, and to remark on the interest shown by all in the furtherance of sanitary development.

Captain Kelsall, I.M.S., carried on the combined duties of Plague Medical Officer and acting Health Officer to the Rangoon Municipality, from the 15th January to the close of the year, with devotion and success, and received the thanks of the Local Government for his services in the cause of plague prevention.

NORTH WEST FRONTIER PROVINCE ADMINISTRATION REPORT

There were 62,062 births registered in the Province against 76,831 in the previous year. The ratio of births per mille to population was 32.5 against 38.6 in 1906. There was a decrease of 7.9 on the mean ratio for the preceding five years—33,892 of the births registered were males.

The death rate per mille of population from all causes was 31.4 against 21.7 in the previous year, the mean death rate for the five previous years being 29.6. A very heavy mortality was recorded in the first two months of the year after the severe malarial epidemic in the autumn of 1906. The high

mean ratio is accounted for in part by the deduction from the total population of the tracts in the Hazara District which are not under registration. The death rate in the Province compared favourably with that of the Punjab, which rose to 62.1.

The excess of Muhammadan deaths over that of Hindus in the Peshawar and Kohat districts continues as usual as ever.

There were 266 deaths recorded from cholera in the Province during the year. The deaths from small pox numbered 769 against 1,127 in the previous year, of which 668 occurred in the Peshawar District. During the year under report plague visited the North West Frontier Province for the first time in an epidemic form. 391 undoubted cases of bubonic plague were reported in the city of Peshawar, of which 310 died. The total number of deaths from plague in the Province was 1,547. Plague inoculation was introduced, but the number of persons who availed themselves of it was small.

The total number of hospitals and dispensaries in the Province is 65. 8,461 in-door patients were treated at State and Local Fund Dispensaries as against 8,858 in the previous year. The number of out-door patients fell from 57,741 to 53,123. This decline in attendance was partly due to the fact that the year was free from the abnormal unhealthiness which characterised the preceding year, but also to the mischievous stories connected with the outbreak of plague which were spread abroad by malcontent persons, and which for a time shook the public confidence in Government hospitals.

The number of operations performed at State and Local Fund Dispensaries amounted to 22,010 as against 23,682 in 1906.

There was a considerable decrease in the attendance at private non-aided dispensaries, partly due to the fact that three of these institutions accepted grants from public funds and their returns were included among those of State-aided foundations. During 1907, 1,199 in-door patients were treated and 55,287 out-door patients. 126 beds were maintained.

VACCINATION

The number of persons vaccinated during 1907/08 was 90,855 as against 91,803 in the previous year. Malignant rumours connected with the advent of plague and disseminated for political purposes caused a considerable decline in the number of inoculations in the Peshawar and Hazara districts. In other parts of the Province the figures were normal. Of the operations performed 76,319 were primary and 14,536 were secondary, the percentage of successful cases being 99.22 in the former class and 88.18 in the latter.

The average strength of the staff of Vaccinators employed during the year was 34 as against 31 in the two preceding years. Each Vaccinator performed on an average 2,763 operations as against 2,961 in the previous year.

TRIENNIAL REPORT ON THE LUNATIC ASYLUMS OF EASTERN BENGAL & ASSAM, 1906-1908

THE review of the working of the asylums during the past three years shows that both institutions have continued to be managed carefully and efficiently. The lunatics have been well looked after in all respects, sympathetically treated, and properly clothed and fed. Work has been distributed with discrimination. The profits on manufactures show that some lunatics have been usefully employed. As in previous years, amusements, such as the theatricals, gramophone recitals, nautches, juggling and magic lantern entertainments were provided. Sweets and fruits were distributed from time to time and *pin* and tobacco were also given as rewards for hard work and good conduct. Newspapers and books were supplied and appreciated by those who were able to read. The expenditure (Rs. 290 7 0) incurred on amusements in 1908 at Dacca was met from the Nawab of Dacca's Entertainment Fund—thanks to his liberality. The use of mechanical restraint in the treatment of lunatics has since September 1906 been placed under restrictions similar to those in force in England. Both asylums maintain registers of solitary confinement and mechanical restraint. These registers are produced at each meeting of the visitors of the asylums, who certify that they have scrutinized each entry, or series of entries, made since the date of the last preceding meeting, and so far no cases of unnecessary or undue subjection to solitary confinement or mechanical restraint have been reported. In both asylums physical restraint is limited to really violent or dangerous lunatics, and is only resorted to when it is absolutely necessary.

The small but steady increase from year to year in the number of lunatics treated in the asylums, and the constant reports of overcrowding and limited accommodation, are evidence in support of the proposal, now under discussion, to build a central asylum for this province. The possibility of converting the asylum at Dacca into a central asylum for the Province has been considered, and the results of a conference

of local officers, held at Dacca on the 24th February 1909, show that this is undesirable. Their report indicates that the present buildings are insanitary, ill placed and unsuited to the modern system of the care and treatment of the insane, and that practically speaking, the whole of them would have to be demolished if a new central asylum on modern plans, is to be built on the existing site and on land acquired adjoining to it the acquisition of which would cost over a lakh of rupees. I agree in the conclusions of the committee that it will be more satisfactory, as well as actually cheaper, to give up the present site of the Dacca asylum to the central jail whose need of extension it would satisfy for many years to come, and that a central asylum should be constructed on another site. I also agree with them that there is no reason why the central asylum should not be built at any other station in the province which is readily accessible by rail from other parts of it, and which is at once healthy and cheap as well as affording plenty of suitable land at a moderate cost. Three possible stations have been mentioned, viz., Comilla, Tezpur and Maida. I am now considering the matter from the point of view of their healthiness, accessibility and economic conditions, and my recommendation will be submitted to Government shortly.

In conclusion I have pleasure in acknowledging the excellent work done by Major Wood in Tezpur, and the care and attention devoted to the asylum at Dacca by Major Anderson and Lieutenant Colonel Hall for the periods they held charge of that institution. At Dacca the Overseer, Romesh Chandra Sil, an experienced officer of nearly thirty years' service, and Hospital Assistant Rash Mohan Bhowmik, have been unremitting in the performance of their duties, while at Tezpur, Hospital Assistant Gurus Chandra Das, who is also Overseer, has proved himself an experienced and capable officer.

REPORT ON DISPENSARIES OF RAJPUTANA FOR 1907

THE year opened with 169 hospitals and dispensaries and closed with 170 in Rajputana or an increase of one, two dispensaries were established, one at Gahni in Banswara State on the 28th April and another at Jodhpur for police on the 1st April 1907. A dispensary at Brieta in Bhiltpur State was closed on 27th April, 1907.

The dispensaries have been classified as under —

I State Public	9
II State Special	10
V Private non aided (i.e.) Native States	151

During the year 1,292,254 patients were treated at State Public, State Special and Private non aided (Native States) dispensaries and hospitals as compared with 1,280,143 in 1906 and 1,090,945 patients in 1905. The increase of 12,111 over the 1906 attendance and of 201,309 over the 1905 attendance, shows that the hospitals continue to increase in popularity.

Of the total number of patients treated 16,253 were in door and 1,276,001 out-door against 16,598 in and 1,263,545 out door in the previous year. The percentage of mortality amongst in patients was 4.23.

During the year from 1st April 1907 to 31st March 1908, 13,717 cases of plague and 9,930 deaths were reported and 354 towns and villages infected in Rajputana including Ajmer Merwara, against 2,685 cases and 2,066 deaths and of infected towns and villages in 1906-07. The percentage 15 total plague deaths to population was 0.69—vide table attached, which shows the severity of the epidemic in Rajputana since 1896.

There were 135 cases of plague with 57 deaths reported in the Ajmer District in 1907-1908 against 54 cases and 31 deaths in the previous year. Merwara district was free from pestilence throughout the year.

From this statement it will be seen that 692,331 men, 264,882 women, 203,973 male children and 131,046 female children obtained medical relief. The number of "all other classes" patients declined by 3,074, while those of Europeans and Eurasians, Hindus and Muhammadans, considerably increased. Hindu patients exceeded Muhammadans by 552,739.

The number of surgical operations performed during the year increased from 65,758 to 66,551, the number of patients operated on increasing from 65,032 to 65,169. Of the persons operated on 64,759 or 98.96 per cent were "cured," 264 or 40 per cent were "relieved," 123 or 0.19 per cent were "discharged otherwise" and 77 or 12 per cent "died" while 219 or 33 per cent "remained under treatment" on 31st December 1907.

Of the operations performed 1,078 were extractions of the lens for cataract of which 959 or 88.96 per cent proved successful, 33 lithotomies, 132 litholapaxies and 185 amputations against 993 extractions of the lens for cataract, 45 lithotomies, 107 litholapaxies and 201 amputations in 1906.

Abdominal operations are slowly increasing as the institutions are levelling up to this class of work.

Lieutenant Colonel P. D. Pank, I.M.S., Residency Surgeon, Jaipur, has long distinguished himself in the field of surgery; this officer's reputation as a general as well as a first class ophthalmic, Surgeon has extended well beyond Rajputana and people flock to him in a large number from a very wide area. The Jaipur District are to be congratulated for the wide reputation then splendidly equipped Mayo Hospital has obtained and the high class work of this institution.

There were ten Commissioned Medical Officers employed in Rajputana at the end of the year.

Lieutenant Colonel D. French Mullon, I.M.S., Residency Surgeon and Chief Medical Officer in Rajputana, was transferred to Ambala as Principal Medical Officer, Sirhind and Jullundur Brigades from the 19th March 1907 and Lieutenant Colonel H. N. V. Harrington, I.M.S., Residency Surgeon, Western Rajputana States, Jodhpur, was appointed in his place from that date.

Captain L. J. M. Ders, I.M.S., Agency Surgeon, Alwar, was posted temporarily as Civil Surgeon of Ajmer on deputation of Lieutenant Colonel H. R. Woolbrut, I.M.S., to Europe on combined leave for one year and nine months, with effect from the 19th March 1907. He remained at Ajmer till the 31st May 1907. Major P. J. Lumsden, I.M.S., took over charge of the duties of the Civil Surgeon, Ajmer, from 4th May 1907.

Lieutenant Colonel R. Shore, I.M.S., who was appointed on return from furlough as Residency Surgeon, Western Rajputana States, was deputed on special duty with the Maharaja's Kunwar of Udaipur from the 19th May 1907. Lieutenant Colonel R. C. Macwatt, I.M.S., took over charge of the duties of the Residency Surgeon, Western Rajputana States, from 1st June 1907.

Lieutenant Colonel W. H. B. Robinson, I.M.S., was on deputation to Europe with His Highness the Maharaja of Bikaner from 7th May to 13th October 1907. Lieutenant Colonel Macwatt, I.M.S., Residency Surgeon, Western Rajputana States, was appointed in visiting medical charge of Bikaner from 1st June 1907 in addition to his own duties.

REPORT ON THE LUNATIC ASYLUMS OF BURMA, 1906-1908

IN the Resolution on the Report on the Rangoon Lunatic Asylum for the triennium 1903-1905, it was stated that the degree of overcrowding was acute, and that it was hoped to begin as soon as possible the construction of a new asylum on a site which had been selected in the neighbourhood of Mandalay. It is a matter of great regret to the Lieutenant Governor that the prospect of the construction of the new asylum being undertaken is now, if anything further off than it was three years ago. The plans and estimates have been prepared, and, although the site near Mandalay has been abandoned on sanitary grounds, a new site has been selected at Vaikula, but in the present state of the provincial finances it will not be possible for some time to come to find the large sum of money which the construction of a new and suitable asylum will require. Temporary relief has been afforded by the conversion of the old jail at Minbu into a lunatic asylum for the accommodation of criminal lunatics for whom special treatment is not essential. In consequence, however, of the rapid increase in the lunatic population this measure has not sufficed to reduce the overcrowding. The two asylums furnish accommodation for an aggregate of 555 patients only whereas on the last day of 1908, the lunatic population of the two asylums amounted to 587. The Lieutenant Governor will consider whether, in view of the difficulty of forecasting when the new asylum will be built, additional accommodation should not be provided in the existing asylums.

It is all the more satisfactory, in view of the inadequate accommodation, to find that the death rate in the two asylums in 1908 was lower than the rate in the asylums in any other Province in India. It is possible that the careful attention which has been paid to the water supply of both asylums has helped to contribute to this result. Special attention has been given during the period under review to the improvement of the supervision exercised over the inmates. Of the reforms introduced the most noteworthy was that of the old system of surveillance which precludes the possibility of a keeper not knowing that a particular patient is specially dangerous or has suicidal tendencies. The result was seen in the decrease in the number of injuries inflicted by the inmates from 30 in 1905 to 13 in 1906, 15 in 1907 and 12 in 1908.

The administration of the asylums during the past three years has been zealous and efficient, and the thanks of the

Local Government are due to the officers who have had charge of the two asylums during the period. His Honour desires also to acknowledge the close attention paid by Colonel King to the administration of the lunatic asylums of the Province.

Lieutenant Colonel G. J. H. Bell, I.M.S., was in charge from January 1906 to January 21st, 1907, Captain H. A. Williams, D.S.O., I.M.S., from January 22nd, 1907, to April 9th, 1907, Captain R. D. Sargol, I.M.S., held charge for four days in April 1907 when he was relieved by Captain Shaw, I.M.S. The latter officer is the present incumbent of the appointment, and is a member of the lately formed Alcock Department of the Indian Medical Service. He has conducted his duties with special care in the interests of his patients as individuals, as befits an officer who would treat patients as a specialist not merely herd them for safe custody. During the time that Captain Williams was in charge, he threw himself into the work of improving the organization with much energy. Lieutenant Colonel Bell's capabilities and appreciation of requirements of the insane were well displayed in the Report written by him after deputation to India on the subject of Asylum construction.

REPORT OF THE BOMBAY BACTERIOLOGICAL LABORATORY FOR 1908

The post of Director of the Laboratory was held throughout the year by Captain W. Glen Lister, M.D., D.I.H., I.M.S., who carried on the current duties of the office of the Director in addition to his duties as Senior Member of the Plague Research Commission.

During the year 533,315 doses of anti plague vaccine have been despatched from the Laboratory to various places, both in and out of India. Despite the fact that last year's epidemic of plague was one of the mildest since the advent of the disease to this country, the amount of vaccine despatched from the Laboratory only fell slightly short of the record quantity despatched in 1907. The following figures show as was pointed out last year the increasing popularity of this method of combating the plague—

1901	1905	1906	1907	1908
115,161	315,905	176,651	620,923	533,315

Throughout the year the Plague Research Commission, with their head quarters at the Laboratory, continued their investigations into the etiology of plague. They have been able to collect further evidence in support of the view that the rat flea is the chief disseminator of the disease. They have been able to show that the differences in the seasonal prevalence of plague in such places as Poona and Belgaum as compared with Bombay and the Punjab can be explained by the difference in the several places in the seasonal prevalence of rat fleas. The number of rat fleas present in any particular place is a dominating factor in the combination of factors which make that place particularly liable to plague at any time.

They have also been able to show that the deductions which they drew from certain experimental epidemics among guinea pigs in godowns can also be deduced from similar experiments in which wild rats were substituted for guinea pigs.

A large amount of evidence has been collected from past epidemics in certain districts in the Punjab and United Provinces to prove that the disease is spread in these districts chiefly by the importation of infection from infected to uninfected areas.

A remarkable example of the advantages of inoculation, as compared with vaccination as a plague measure, was afforded in the case of Sadia Camp and certain adjoining villages. Assistant Surgeon R. V. N. Rige, who furnishes the information, writes: "The most striking feature in my experience of plague last year is that no one that was inoculated got the disease though, as a rule, the inoculated persons did not leave the infected village like the uninoculated and were in consequence more exposed to infection. As soon as plague rats were found inoculation was taken in hand and those that were not willing to get themselves inoculated were told to evacuate which they did, as a rule, most willingly. In the case of the Sadia Camp and village the inoculated persons did not evacuate and still not a single case occurred among them while in the uninoculated 15 cases occurred though they lived outside in camps, they got the infection by visiting their infected houses or shops. At Pethapur 172 persons were inoculated chiefly such as had to work in the infected town,

1/2, Police, Municipal servants, sweepers, etc., and none of them got the disease while 117 cases occurred among nearly 1,000 persons who did not get themselves inoculated but had gone out to live in the fields close by."

	Inoculated	Not inoculated	Attacks among inoculated	Deaths among inoculated	Attacks among not inoculated	Deaths among not inoculated
Sadia Camp and village Pethapur	631 172	350 1,000	Nil Nil	Nil Nil	15 117	10 123

DISPENSARY RETURNS OF THE PROVINCE OF EASTERN BENGAL AND ASSAM

The total number of in and out patients treated during the year was 3,271,413 against 3,079,310 in the previous year, or an increase of 212,001. The increase was shared by 21 districts, -10 in Eastern Bengal and 11 in Assam.

Among the operations are included 814 removal of tumours of all kinds, 110 removal of cysts, 7 operations on arteries, 2 operations for aneurysm, 8 operations on veins, 330 operations for restraint of haemorrhage, 6 operations on nerves, 1,893 on bones, 23 excision of joints, 231 amputation, 7 operations on the skull and brain, 758 extraction of lens, 3 tracheotomy, 2 removal of thyroid body, 33 laparotomies, 73 liver abscess, 1 nephrotomy, 18 lithotomy, 61 litholapaxy, 3 lithotripsy, 9 excision of eye ball, 44 iridectomy, 3 castration, 1 ovariectomy, and 317 obstetric operations of all kinds. The number of selected operations increased considerably during the year under report, being 1,101 in 1908 against 2,809 in 1907. The cause of this increase is chiefly due to the inclusion of setting of fractures among selected operations. A few other operations have also been included in the selected list as they were considered important. The largest number of selected operations were performed by Captain H. A. J. Gidney Godpala (320, including 270 cataracts), Lt. Colonel R. N. Campbell, Dacca (170, including 12 cataracts in 9 months), Lt. Colonel E. A. W. Hall, Chittagong and Dacca (110, including 72 cataracts), Captain W. D. Ritchie, Chittagong and Jalpaiguri (70, including 20 cataracts), Captain L. B. Scott, Barisal and Gauhati (54 including 18 cataracts), Dr. R. S. Asher, Faridpur and Mymensingh (13 including 10 cataracts). Among the assistant surgeons Lalit Mohan Roy, Mymensingh did 130, Rajani Kant Das Gupta, Chittagong 95, Rai Gopal Chandra Chatterji, Bahadur Dacca, 76, Mahabub Khan Nayangani, 56, Aswini Kumar Das Hydrabad, Mymensingh, 56, Shahjahan Ali Swarganj, 50, Basanta Kumar Roy Natori, 48, Hari Krishna Das, Gauhati, 43, Suresh Chandra Bhattacharya, Dibrugarh 36, Binoy Lal Mazumdar, Patuakhali and Rainguri, 35, and Gurja Sankar Kar, Rampur Baria, 31.

Correspondence

"LITHOTRITY AND LITHOLAPAXY"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR, -I doubt if the proposal which Major C. Duer put forward in his letter headed 'Lithotripsy and Litholapaxy' in last November issue of *The Indian Medical Gazette* will find much favour among men of our service interested in the surgery of vesical calculus.

We have used the designation 'litholapaxy' in India for the last thirty years to the almost total exclusion of the word 'lithotripsy'. I quite agree with Major Duer that it is anomalous to register the same surgical operation under two different headings in Civil Administrative Medical Reports but I would urge that the remedy for this anomaly is to discard the designation 'lithotripsy' and to register all crushing operations for vesical calculus by the word which Bigelow coined in the year 1878. Freyer in both editions of his work *The Modern Treatment of Stone in the Bladder* by 'Litholapaxy' (1888-1896) wrote 'Bigelow applied the name 'litholapaxy' to his operation but to this Sir Henry Thompson objects, suggesting 'lithotripsy' at one sitting, as

more appropriate. Now, I think, there are many advantages in having a distinctly new name for a distinctly new departure in surgery. The word litholapaxy seems to me the one most expressive of the procedure involved in the new operation. Bigelow's operation involves much more than the crushing of the stone, the essential feature being its complete and rapid evacuation. Besides, as I have already pointed out, there are many cases in which a small calculus can be removed by the aspirator alone, in which no crushing is required, and to which, consequently, the name 'lithotomy at one sitting' cannot be applied, whereas the word 'litholapaxy' will also embrace these."

In *The Indian Medical Gazette* (June 1886) I wrote "A few words in conclusion on the name which Bigelow's operation should bear. I thoroughly agree with Dr Freyer when he writes 'There are many advantages in having a distinctly new name for a distinctly new departure in Surgery.' 'litholapaxy' is etymologically quite as good a word as lithotomy or lithotomy, although, as Sir Henry Thompson remarks, it may not perhaps be a very euphonious one. In addition to the advantages claimed for the use of this word by Dr Freyer, I would point out that its general application by Surgeons when they write or speak of that operation by which a stone is rapidly evacuated from the bladder will have the effect of imperishably associating Bigelow's name with that procedure which he was the first to put in practice. The title which Sir H. Thompson would bestow on this new departure in surgery, viz., 'lithotomy at one sitting' or 'at a single sitting' if, unfortunately, it should become general, might possibly have the effect in the distant future of obscuring Bigelow's fame. And this should not be."

Sir Henry Thompson was an artist as well as a surgeon, and when Bigelow coined the word 'litholapaxy' for his original and brilliant operation, Sir Henry, loth to abandon the word 'lithotomy,' proposed, with an artist's touch, that the new departure should be designated 'lithotomy at one sitting' or 'lithotomy at a single sitting.' But in practice, this designation was found to be too cumbersome, and it gradually fell into disuse as we surgeons practising in India persisted in calling the new departure by the name which Bigelow gave it from the first.

Marcus Beck who revised and edited Erichsen's Surgery in 1888 was a very distinguished surgeon of University College Hospital where Sir Henry Thompson had the foundation of his great reputation in Urinary Surgery. And it was only but natural that Beck should have been influenced by Sir H. Thompson's opinion and views regarding the nomenclature of the new operation. But Beck was in error when he stated 'that the distinctive name is now seldom used.' On the contrary it continued to be used all over America, and in India it was employed by men of our service when recording crushing operations for stone in the bladder. And, again, Beck was in error when he wrote 'and when we speak of lithotomy we mean crushing the stone and removing the fragments' as I shall show by the following extract from a paper which I contributed to the *Lancet* (October 4th, 1890). "But lithotomy is first practised by Bigelow—i.e., lithotomy coupled with total evacuation of all debris at one operation should not be confounded with the obsolete lithotomy of many crushings without evacuation of debris which preceded the year 1878. I remark that there is a tendency to confound these two very different operations and to make them do duty one for the other when statistics and other questions bearing on the surgery of stone in the bladder come under discussion. For instance, Sir Henry Thompson in a footnote to a letter which appeared in the *Lancet* of 15th February 1890, page 372, tells us that there is nothing new in performing lithotomy in children, and that the only thing novel about it is that it is now applied to large stones in this class of patients. Everybody who knows any thing about the history of the surgery of stone in the bladder knows perfectly well that years and years ago, lithotomy without evacuation of the debris of stone at the time of operation was practised with disastrous results in children. But lithotomy by Bigelow's method, or litholapaxy, when applied to male children and boys, is new or comparatively new, and, what is still better is an eminently successful operation in practised hands, and was first performed at the Indore Hospital, Central India."

Chambers's English Dictionary (1905) gives the derivation of the word litholapaxy from the two Greek words *lithos*, stone, and *lapax*, once only. This it seems to me, is a better derivation than that given by Freyer already quoted. If we must discard the word 'litholapaxy' then let us adopt the word 'lithotripsy' or 'lithotripsy,' as German surgeons generally do in preference to 'lithotomy.' 'Lithotripsy' or 'lithotripsy' being derived from *lithos*, stone and *triptein* to crush expresses more exactly the crushing process than does 'lithotomy' derived from *lithos*, stone, and *tribein* to rub. But I have no objection to 'litholapaxy.' We have done very well with it in India for more than thirty years. I enter a plea for its retention, and I hope that the many past masters in

the craft of crushing vesical calculi, now in India, will support me.

Yours, &c.,
D. T. KEEGAN,
I.M.S. (retired)

TIROL,
28th January 1910

"OPERATIONS FOR VARICOSE VEINS AND STRICTURE OF THE URETHRA"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—In the January Gazette Major Dyer refers to new operation for varicose veins. He evidently refers to the operation of Dr Chas H Mayo, of Rochester, Minn. I saw Mayo do this operation about six years ago and on my return to India a year later I performed the operation several times with satisfaction using a blunt uterine curette for the purpose. I have since procured Mayo's instrument. The operation is an eminently satisfactory one. The entire internal saphenous vein may be removed through two or three half inch incisions.

Apurpos of methiotomy and Colonel Roberts' article in the same number I can corroborate what Colonel Roberts says. I have been using for some years practically the same method as described by Colonel Roberts and I can recall but one case in about 50 operations in which I could not find the proximal opening of the urethra and in that case I did a retrograde operation with good result.

PRESBYTERIAN MISSION
HOSPITAL,
Dated 11th February 1910

Yours truly,
W. J. WANLESS, M.D.,
May, India

"RENAL CALCULUS IN CALCUTTA"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—In your issue of November 1909 p. 426, Dr H. Finch, physician to the Imperial Consulate General, Calcutta, has reported his experience of 'Renal Calculus in Calcutta' through the *Archiv f. Schiff's und Tropen Hygiene*, 1909, 13 Bd., Heft 16.

His cases seem very interesting in their relation to the nature of the calculus and the influence which diet bears to them with regard to climatic influence in its relation to calculus, I would feel disposed to say that although it may have some, yet it is indirect, and not direct in the same way as diet in the various parts of India among Hindus and Mohammedans respectively.

About 12 years ago, and since then, there was much written in the medical journals in India, and also in this country, about the influence of diet in India on the production of cases of calculus, and I think I am right in saying from the experience of others as well as my own in India, that the races that consumed *atta* or Indian flour for *chappatties* in large numbers at each meal, and who also consumed a great deal of flesh at the same time, were more liable to the hard forms of calculi and in great numbers, while those who consumed rice suffered more from the soft forms (phosphatic chiefly) and not in such great numbers as the former. Calculi likewise calculi are far more numerous in the Northern Provinces of India and along the N.W. Frontier than in Lower Bengal and Assam, chiefly owing to the causes respecting diet in the races. I reported some time ago while Civil Surgeon of the Bijnor district, N.W.P. and Oudh, a case of renal calculus of three years' standing in a patient about 60 years of age who received temporary relief from hypodermic injections of morphia. He placed himself under my care, and I administered morphia hypodermically from $\frac{1}{2}$ to $\frac{1}{4}$ of a grain whenever the pains from renal colic were evident. At the same time, his diet received strict attention, while I also gave him Friedrichshall water in doses *secundum artem*. He passed three to five fragments of a renal calculus one day while engaged in a law suit in the local court, when he felt a pain coming on he asked to be excused from the court, went outside, sat under a tree—and as he was instructed by me to pass his water through a muslin bag—he did so and brought me the fragments which were faceted, and showed that the calculus must at one time, while in the pelvis of the kidney, have been united together. I attribute the success of my treatment to the technique employed, and the dietary followed. As to the use of massage along the ureter, when a calculus is impacted I am somewhat afraid that its employment in some cases might do harm, especially if, as in

my case there are fragments which become disconnected instead of being a smooth calculus and whole and entire. I would in such cases be somewhat disposed to employ the *isatergo* by flushing the urinary apparatus with diuretics and diluents which increase the lumen of the ureter by the onward flow of urine and thus allow the calculus to be borne away into the bladder. Any other force employed seems contraindicated.

I would, however, suggest an electric battery or galvanism along the ureter in some cases where the stone is impacted.

Trusting you will kindly favour me by publishing this reply,

Yours truly,

G H FINK,

MAJOR, I M S

"MEDICAL REGISTRATION"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—The elite of medical profession are working hard to have a change in the present system to introduce Registration Act. But in my own suggestion, though humble it is, it will be wiser to try along with to have one examining board for Allopathic, Homoeopathic, Ayurvedic (Kaviraj system) and Unani (Hakimi system), abolishing all private examinations, but rigidly examining all sorts of medical schools, whether state or self constituted, so that a diploma from one that had passed the examination should be regarded as a sufficient guarantee of the graduate's fitness and permit him to practise where he pleases without interference from local authorities. Medicine is a noble profession and should not drift into a mere trade union.

"Munshidih," Mohohar P O, } Yours faithfully,
B N Ry, } J BANERJEE, V L M S
Dated 4th February 1910

Service Notes

SERVICE DINNER

UNITED PROVINCES

The fourth annual dinner of the I M S Officers of the United Provinces was held in the Chutter Munzil, Lucknow, on Thursday, 3rd February.

Lieutenant Colonel Harris presided and Lieutenant Colonel J J Pratt, Civil Surgeon of Lucknow, was Vice President.

The dinner was a most successful one.
Toasts—The King Emperor and the Indian Medical Service.

Lieutenant Colonel J J Pratt then proposed Colonel Harris health and said that he and his brother officers very much regretted losing after so short a time a chief who besides being so distinguished a physician and a most able administrative officer was a man who had endeared himself to all those serving under him.

Although it was Bengal's gain to obtain an Inspector General of Civil Hospitals, like Colonel Harris it was a loss to all officers in the U P.

Lieutenant Colonel Harris then suitably responded and stated he had only served seven months in the U P but all the same he could feel it a great grief leaving them when he had already found his fast friends.

PRESIDENT

Lieut Colonel G F A Harris, V L M S
Lieut Colonel J J Pratt
Lieut Colonel J M Cadell
Lieut Colonel C Mactaggart
Lieut Colonel A William Dawson
Lieut Colonel I K Close
Lieut Colonel J Chaytor White
Major J G Hulbert
Major W Young
Major C B Prall
Major R G Turner
Major S A Harris
Major W Selby D S O
Major E J Morgan
Major I C Robertson
Captain T Hunter
Captain C Hutcheson

Captain W S Willmore
Captain J N Walker
Captain W E McKechnie
Captain R Steen
Captain J D Graham
Captain W Lapsley
Captain A W Cook Young
Captain H R Nutt
Captain H W Illius
Captain C E Palmer

The same evening in a separate room in the Chutter Munzil the Civil Officers of the I M S serving in Lucknow entertained to dinner the wives of the officers attending the former dinner.

PRESENT

Mrs Pratt
Mrs Mactaggart } Hostesses
Mrs Prall
Mrs Cadell
Mrs Close
Mrs Hulbert
Mrs Young
Mrs Turner
Mrs Harris
Mrs Selby
Mrs Morgan
Mrs Hunter
Mrs Hutcheson
Mrs Walker
Mrs McKechnie
Mrs Lapsley
Mrs Nutt
Mrs Illius
Mrs Jackson
Miss O'Brien
Miss Harris
Miss Mair
Miss Rouse
Miss Harris most unfortunately was prevented by ill disposition from being present.

FAREWELL DINNER TO COLONEL R MACRAE, I M S

COLONEL MACRAE, late I G C H Bengal was entertained on the eve of his retirement at a farewell dinner at the Bengal U S Club on February 26th, at which the following were present: Lieutenant Colonels Culvert, Clarkson, Crawford (in the chair), Diary, Green and Nott, Majors Bud, Clemesha, Greig, Hayward, Lindesay, Mulvaney, Newman, O'Kinealy, Rait and C R Stevens, Captains Connors, Cook, Emslie Smith, Lloyd, Mackworth, Macrae, McCay, Munro, Owens, Steen, and Stewart. The other guests present were Messrs Ranger and Price, and Captains Kennedy and Lister. After the loyal toast had been twice honoured, the health of the guest of the evening was proposed by Lieutenant Colonel D C Crawford, in a felicitous and erudite speech, in the course of which he displayed a characteristically intimate knowledge of the various stations in which Colonel Macrae had served during a period of 29 years passed in civil employment. In conclusion he wished Colonel and Mrs Macrae many happy years of well earned retirement. The toast was received with musical honours.

Colonel Macrae in reply said—

Colonel Crawford, dear friends and brother officers, I find it extremely difficult to express to you my feelings on this occasion. It is an established custom on such occasions as the present to make feeling allusions to the "land of regrets." I do not propose to follow this precedent, but after nearly 35 years of service of various kinds in peace and war and in various portions of this empire it is with real regret that I now sever my active connection with the I M S. It is with still greater regret that I have to bid "goodbye" to my loyal friends and fellow workers of the Bengal Medical Service to whom I owe so much.

I shall always feel proud of having had the honour of being at your head for the last five years. I thank you Colonel Crawford very sincerely for the kindly and flattering manner in which you have proposed my health and referred to my services and you all gentlemen for the manner in which you have endorsed what has been said.

While I live I shall look back with pride on the fact that so many of you at great personal inconvenience and from long distances have done me the honour to ask me to come here to night to bid me "God speed."

It is I consider no small complement from a body of men such as you are of whom any service in the world might well be proud.

I am glad that you have given me this opportunity of expressing to you however inadequately my sincere and heart felt thanks for the willing and loyal aid you have always rendered me in promoting the objects of our department.

We have had a busy time during the past five years. It is generally admitted that at no former period has such progress been effected, the local Government has treated us generously as regards funds, our hospitals are not only many of them up to date, but are now serving as models for other Governments and Provinces, and I think we of the Bengal Medical Service have every reason to be legitimately proud of our recent achievements.

I have high authority for saying so. Her Excellency the Countess of Minto has most graciously paid our hospitals frequent visits, and in her own inimitable way has always cheered and encouraged us.

I have been told that at no former period has the department run more smoothly. This is no small credit to us all considering the numerous subjects of friction occurring in our daily lives. Looking back on a long service, one cannot help viewing it with a sense of one's own shortcomings, one's waste of time or opportunities missed.

For myself I would claim that I have honestly tried to do justice between man and man, European or Indian so far as lay within my power.

I am proud to say that I leave the service of which I took charge five years ago, not only at peace with all of you, but the sincere friend of all, and my successor takes over the charge of a service and department, and, in the presence of Mr. Price, my Personal Assistant, whom I am glad to see here this evening, I would like to add an Office, in the highest state of efficiency.

In this age of reforms we as a service have not escaped the reforming propaganda. There can be no doubt that changes will come which will affect the service. I fear that the mere fact that they are impending will have a bad effect on future recruiting.

I can only say that it will be a bad day for this country which owes so much to the grand old Indian Medical Service, when it no longer offers the same attractions as it has done in the past to the best type of British Surgeons and to the adventurous spirits of our race. I have tried so far as lay within my power to stand up for the service and its interests as I firmly believe that whatever lowers its prestige is not in the interests of the country in which we opened a good portion of our lives. If I may venture to offer you a final word of advice it would be "stick together, and be true to one another."

Permit me to again thank you most sincerely and gratefully for your kindly hospitality this evening and for the reception you have given one which I shall never forget.

Major Stevens replied in a brief and humorous speech to the toast of the honorary secretaries. The toast of the guests was then proposed by Major Bird and responded to by Mr. Ranger. Lieutenant Colonel Druy, in proposing the health of the Chairman, roused much sympathetic applause by his reference to him as "the future historian of I. M. S.," and expressed a hope that the period of gestation would not be delayed. Lieutenant Colonel Crawford in his reply plaintively protested against his treatment in having to speak twice but did not commit himself to a prognosis. It was a matter of grief and general regret that Colonel Harris, I. G. elect, was unable to be present on account of serious illness in his family.

WE regret to announce the death at Algiers on January 10th as the result of an accident, of Dr. Thomas Dixon Savill, of 66, Harley Street, the well known Nerve and Skin Specialist. He was for many years Physician to the Hospitals for Nervous Diseases and for the Skin in Leicester Square.

His name will live in his books—his *System of Clinical Medicine*, his *Neurasthenia*, the last edition of which published quite recently, was held to be the great book of the medical year, and his *Lectures on Hysteria*, the views expounded in which will doubtless be in time accepted, as those on *Neurasthenia* now are.

LIEUTENANT COLONEL CAMPBELL MELLIS DOUGLAS, M.D., V.C., late of the Army Medical Service, died on December 31st, 1909 at the age of 69. He was appointed Assistant Surgeon, October 1st, 1862. Surgeon, March 1st, 1873, and Surgeon Major, April 28th, 1876, retiring from the service with the honorary rank of Brigade Surgeon October 1st, 1882. Dr. Douglas, together with four privates of the 24th Regiment, was awarded the Victoria Cross "for the very gallant and daring manner in which, on May 7th 1867, they risked their lives in manning a boat and proceeding through a dangerous surf to the rescue of some of their comrades, who formed part of an expedition which had been sent to the island of Little Andaman by order of the Chief Commissioner of British Burmah, with the view of ascertaining the fate of the commander and seven of the crew of the ship *Assam Valley*, who had landed there, and were supposed to have been murdered by the natives. The officer who commanded the troops on the occasion reports 'About an

hour later in the day, Dr. Douglas, 2nd Battalion 24th Regiment, and the four privates referred to, gallantly manning the second gig, made their way through the surf almost to the shore, but, finding their boat was half filled with water, they retired. A second attempt made by Dr. Douglas and party proved successful, five of us being safely passed through the surf to the boats outside. A third and last trip got the whole of the party left on shore to the boats.' It is stated that Dr. Douglas accomplished these trips through the surf to the shore by no ordinary exertion. He stood in the bows of the boat and worked her in an intrepid and seamanlike manner, cool to a degree, as if what he was then doing was an ordinary act of every day life. The four privates behaved in an equally cool and collected manner, rowing through the roughest surf when the slightest hesitation or want of pluck on the part of any one of them would have been attended by the gravest results. It is reported that seventeen officers and men were thus saved from what must otherwise have been a fearful risk, if not certainty, of death. The silver medal of the Royal Humane Society was also awarded to Dr. Douglas for the same service.—B. M. J., 5th February 1910.

LIEUTENANT COLONEL WILLIAM GEORGE PATRICK ALPIN, of the Bengal Medical Service, retired on 6th January 1910. He was born on 15th September 1859, educated at St. Thomas' Hospital, took the diplomas of M.R.C.S. in 1881 and L.R.C.P. in London, in 1882, and the degree of M.D. Brussels in 1884, entering the Bombay Medical Service on 1st April 1884. He became Surgeon Major on 1st April 1886, and Lieutenant Colonel on 1st April 1901. He served in the Soudan in 1885, and was present at the action of Taped, receiving the medal with two clasps, and the Khedive's bronze star, also in the relief of Chitral in 1897, for which he received the medal and clasp.

Lieutenant Colonel Alpin has had a more varied experience of service in different provinces than falls to the lot of most men. Originally posted to Bombay, he was transferred to Bengal about two months after his arrival, Surgeons H. E. Banerjee from Bombay and G. H. Fink from Madras being also transferred to Bengal at the same time. After two years' military duty he entered civil employment in Bengal, but after a year or so in that province was transferred to Central India, to officiate in the Bhopal Battalion. He then became a Civil Surgeon in the North West, now the United Provinces, and among other stations served at Masulih and Ferozabad. A few years ago he again reverted to military duty, and had been on furlough since March 1908.

COLONEL ROBERT DAVIDSON MURRAY, of the Bengal Medical Service, retired on 29th March 1909. He was born on 30th August 1851, educated at Edinburgh University, where he took the degrees of M.B. and Ch.M. with distinction in 1873, and entered the I.M.S. as Surgeon on 31st March 1875, becoming Surgeon Major on 31st March 1887, Surgeon Lieutenant Colonel on 31st March 1895, Lieutenant Colonel on the selected list on 1st April 1900, and reaching the rank of Colonel on 29th March 1905, with just thirty years' service. He served in the Burmese war in 1886-87, where he was present in the operations of the 1st Brigade, and was mentioned in despatches G.G.O. No. 434 of 1887, and received the medal and clasp. This was his only military service, almost the whole of his service having been spent in civil employ in Lower Bengal, where he served successively as Civil Surgeon of Jessore, Nadiya, Champaran, Gaya, Chittagong and Howrah, held Resident Surgeoncies in both the Medical College and the General Hospitals, and for some seven years was Professor of Surgery in the Medical College, and first Surgeon to the College Hospital. He acted for three months as Inspector General of Civil Hospitals in Bengal, during the absence of Colonel S. H. Browne, in the early part of 1905, and succeeded Colonel C. H. Joubert in the same appointment in the United Provinces. For the past eight months he had been on furlough prior to retirement. His place as Inspector General in the United Provinces is taken by Colonel C. O. Mansfield, who attains that rank with just twenty three years' service.

LIEUTENANT COLONEL JOHN ANDERSON, of the Bengal Medical Service, retired, with an extra compensation pension on 1st April 1910. He was born on 11th August 1855, educated at Edinburgh University, where he took the degrees of M.B. and Ch.M. in 1878, and entered the I.M.S. immediately after, as Surgeon, on 30th September 1878, becoming Surgeon Major on 30th September 1890, Lieutenant Colonel on 30th September 1898, and Lieutenant Colonel on the selected list on 1st January 1905. He served in the Afghan war of 1878-80, and was present in actions with the Ghilzais and at Jagdallak, and received the medal. For nearly thirty past,

however he had been a Civil Surgeon in the United, till a few years ago the North West Provinces. Here he early made a name for himself as a bold and successful Surgeon. For many years past he had been Civil Surgeon of Lucknow till he went home in bad health a year ago. Had his health permitted him to return he would doubtless have succeeded Colonel Murray as Inspector General of Hospitals in the United Provinces.

CAPTAIN ARTHUR FALCONER HAYDEN, M.B., F.R.C.S. of the Indian Medical Service, is placed on temporary half pay on account of ill health, from 23rd January 1910. He entered the I.M.S. as Lieutenant on 1st September 1905, becoming Captain on 1st September 1908 but had been on sick leave since 5th March 1908, so had spent only about two years in India.

LIEUTENANT COLONEL JOHN LEOPOLD POYNDR, of the Madras Medical Service, retired on 12th December 1909. He was born on 11th March 1855, educated at St. Bartholomew's, took the diplomas of L.R.C.P. London, M.R.C.S., and L.S.A. in 1877 and entered the I.M.S. as Surgeon, on 31st October 1879. He became Surgeon Major on 31st March 1891, Lieutenant Colonel on 31st October 1899 and was placed on the selected list on 1st April 1908. Most of his service had been passed as a Civil Surgeon in the Central Provinces. Latterly at Raipur first, and then at Nagpur. He had been on leave for over two years. The Army List assigns him no war service.

LIEUTENANT COLONEL JAMES WARSDEN, of the Madras Medical Service, retired on 10th February 1910. He was born on 10th February 1855, educated at Marlhas and at University College, London, took the diplomas of M.R.C.S. and L.S.A. in 1879 and entered the I.M.S. as Surgeon on 31st October 1879, becoming Surgeon Major on 31st October 1891, and Lieutenant Colonel on 31st October 1899. Great part of his service had been passed in civil employment, latterly he had been Civil Surgeon of Chingleput. The Army List assigns him no war service.

LIEUTENANT COLONEL WILLIAM HENRY BURKE, of the Bombay Medical Service, retired on 1st January 1910. He was born on 5th November 1858, educated at Trinity College, Dublin and Vienna the degrees of M.B. B.Ch. in 1882, and the D.P.H. in 1883 at Trinity, and entered the I.M.S. as Surgeon on 30th September 1882. He became a Surgeon Major on 30th September 1894, Lieutenant Colonel on 30th September 1902 and was placed on the selected list on 14th November 1908. Most of his service had been passed in civil employment, he had been Surgeon of the Gokuldas Tejpal Hospital at Bombay and latterly Civil Surgeon of Poona, and Superintendent of the Medical School and Lunatic Asylum at that station. He served in Burma in 1886-87, was mentioned in despatches G.G.O. No 561 of 1887 and received the Burmese medal with clasp.

LIEUTENANT COLONEL NITYANANDA CHATTERJEE, Madras Medical Service, retired, died at Bangalore of cerebral hemorrhage on February 1900. He was born on 11th November 1833, took the diplomas of L.R.C.S. Edinburgh and L.F.P.S.G. in 1876 and entered the I.M.S. as Surgeon on 31st March 1877. He became Surgeon Major on 31st March 1889, Surgeon Lieutenant Colonel on 31st March 1897 and was placed on the selected list on 10th March 1904. Most of his service was spent at regimental duty. He served in the Burmese war from 1886 to 1889, receiving the medal with two clasps.

LIEUTENANT COLONEL F. C. CLARKSON, I.M.S., Sanitary Commissioner Bengal, is granted privilege leave for three months with furlough for one year and nine months in continuation with effect from the 28th February 1910.

MAJOR W. W. CLFRESHIA, M.D., I.M.S. Deputy Sanitary Commissioner Bengal and Orissa Circle is appointed as Sanitary Commissioner Bengal.

THE Services of Captain J. Husband, M.B., I.M.S. are placed temporarily at the disposal of the Government of Burma.

CAPTAIN W. TARP, M.B., I.M.S. Officiating Civil Surgeon Bandra, is appointed to officiate as Superintendent, Central

Jail, Jubbulpore, during the absence on leave of Major C. H. Bensley, I.M.S., or until further orders.

HIS Excellency the Governor of Bombay in Council is pleased to appoint Captain L. P. Stephen, M.B., I.M.S. as Civil Surgeon of the Second Class, *vice* Lieutenant Colonel W. H. Burke, M.B., I.M.S., retired.

AT an examination held at Bharno on the 29th January 1910, Lieutenant Colonel K. Prasad, M.B., I.M.S., Civil Surgeon Bharno passed the prescribed test in the Marathi language.

LIEUTENANT COLONEL PRASAD is entitled to receive a reward of Rs 1,000.

LIEUTENANT COLONEL T. W. STEWART, I.M.S. on return from leave is appointed to the Civil Medical charge of the Akary District, in place of Major J. Penny, I.M.S., proceeding on leave.

MAJOR D. W. SUTHERLAND, I.M.S., Principal and Professor of Medicine Medical College, Lahore, has been permitted by His Majesty's Secretary of State for India to convert the period from the 4th of October to the 16th of December 1909, of the furlough granted to him in Government of India Home Department, Notification No 1186, dated 24th of September 1909, into a study leave.

COLONEL HENRY KILLOCK MCKAY, C.B., C.I.E. Indian Medical Service Bengal is permitted to retire from the service subject to His Majesty's approval, with effect from the 31st December 1909.

To be Colonel

LIEUTENANT COLONEL THOMAS GRAINGER, M.D., *vice* Colonel H. K. McKay, C.B., C.I.E., Indian Medical Service, Bengal, retired. Dated 31st December 1909.

INDIAN MEDICAL SERVICE—Specialists—The undermentioned officer is appointed a specialist in the subject noted, from 26th July to 7th August 1909, both days inclusive.

Prevention of Disease

Captain H. S. Matson, Brigade Laboratory, Kohat.

Brigade Staff—Colonel H. St. C. Carruthers, I.M.S., to be Principal Medical Officer, Secunderabad Brigade, *vice* Colonel F. B. Nicolson, British Service, transferred. Colonel R. W. S. Lyons, I.M.S. to be Principal Medical Officer, Kohat Brigade, *vice* Colonel H. St. C. Carruthers, I.M.S. transferred.

Colonel T. J. R. Lucas, British Service, to be Principal Medical Officer, Abbottabad and Sialkote Brigades, *vice* Colonel R. W. S. Lyons, I.M.S., transferred.

Personal Staff—Captain A. E. J. Lester, M.B., F.R.C.S., I.M.S., to be Surgeon to His Excellency the Commander in Chief in India. Dated the 7th January 1910.

THE following postings and transfers are ordered in the Civil Medical Department, Burma—

Captain R. D. Sigol, I.M.S., to be Civil Surgeon, Meiktila as a temporary measure, in place of Captain E. A. Walker, I.M.S., transferred.

Captain E. A. Walker, I.M.S. to be Civil Surgeon, Bassein, in place of Major P. Dee, I.M.S., proceeding on leave.

MAJOR T. JACKSON, M.B., B.S., I.M.S., is granted, from the date of relief, such privilege leave of absence as may be due to him on that date and six months' study leave in combination with furlough for such period as may bring the combined period of absence up to one year.

HIS Excellency the Governor of Bombay in Council is pleased to make the following appointments—

Captain J. L. Lunham, M.B., I.M.S., to act as Medical Officer to the Kathiawar Political Agency and in charge of

the West Hospital, Rajkot, during the absence on deputation of Major A. Hooton, M.B., C.M., I.M.S., on pending further orders.

Assistant Surgeon Darabshah Edalji Kothavala, L.M. & S., to act as Civil Surgeon, Surat in addition to his own duties as Medical Officer, Panch Dispensary, Surat, pending further orders.

Assistant Surgeon Prabhashankar Trikamji Kothari, L.M. & S., to act as Medical Officer to the Kathiawar Political Agency with attached duties from the date of departure of Major A. Hooton, I.M.S., pending the arrival of Captain J. L. Lunham, I.M.S.

CAPTAIN W. M. HOUSTON, M.B., I.M.S., held charge of the Civil Surgeoncy of Poona with attached duties from 1st to 9th January 1910 (both days inclusive).

His Excellency the Governor of Bombay in Council is pleased to make the following appointments—

Major H. Bennett, M.B., C.M., F.R.C.S., I.M.S., to act as Civil Surgeon, Ahmedabad *vice* Major T. Jackson, M.B., B.S., I.M.S., proceeding on leave pending further orders.

Major J. H. McDonald, M.B., C.M., I.M.S., on return from leave, to act as Civil Surgeon, Belgaum, *vice* Major H. Bennett, M.B., C.M., F.R.C.S., I.M.S.

MAJOR N. R. J. RAINIER, D.P.H., I.M.S., Civil Surgeon, Chhindwara, is placed in visiting medical charge of the Seoni District.

THE following promotions are made subject to His Majesty's approval—

CAPTAINS TO BE MAJORS

28th January 1910

Godfrey Tate, M.B.
Roy Pearson Baird
Andrew Thomas Gage, M.B.
George McPherson, M.B.
Alfred George Sargent
Walter Hulbert Cox, D.S.O.
de Vere Condon, M.D.
Henry Kirkpatrick, M.B.
Frederick Duand Sterling Fyler
Padmaku Krishna Chitule
William Lethbridge, M.D.
Thomas Hunter, M.D.
Walter Rothney Battye, M.B., F.R.C.S.
George Hutcheson, M.D.
William Glen Lister, M.D.
Harold Boulton, M.B.
Richard William Anthony, M.B., F.R.C.S.F.
Ernest Frederick Gordon Tucker, M.B.
George Edward Stewart, M.B., F.R.C.S.E.
Frank Stuart Corbitt Thompson, M.B.
John William Waston

INDIAN MEDICAL SERVICE—Specialists—The following officers are appointed specialists in the undermentioned subjects with effect from 1st January 1910—

(c) Advanced Operative Surgery

3rd (Lahore) Division, Lieutenant A. de C. C. Charles

(h) Midwifery and diseases of Women and Children

6th (Poona) Division, Lieutenant S. J. Bathena

THE services of Major D. H. McD. Givies, M.B., I.M.S., are placed temporarily at the disposal of the Government of Madras.

THE services of Captain J. J. Uwin, M.B., F.R.C.S., I.M.S., are placed permanently at the disposal of the Government of Bengal.

THE services of Captain L. P. Stephen, M.B., I.M.S., are placed permanently at the disposal of the Government of Bombay.

CAPTAIN J. M. A. MACMILLAN, M.B., F.R.C.S., I.M.S., Officiating Civil Surgeon, Seoni is transferred in the same capacity to the Hoshangabad District.

THE services of Captain J. F. James, M.B., I.M.S., are placed temporarily at the disposal of the Government of Eastern Bengal and Assam.

THE following promotions are made, subject to His Majesty's approval—

LIEUTENANTS TO BE CAPTAINS

4th October 1909

Norman Niel George Cowan McVean, M.B.
Robert Francis Heibert
James Smalley, M.B.
William Malcolm Thomson, M.B.
Francis Hugh Salisbury, M.B.
Frederick Charles Krazer, M.D.

2nd February 1910

Owen Alfred Rowland Berkeley Hill, M.B.
Walter Lidwell Harnett, M.B., F.R.C.S.
John Drummond Sanders, M.B.
William Percival Gould Williams, M.B.
Savas Byramjee Mehta, F.R.C.S.E.
Alexander Harper Napier, M.L.
Gilbert Holroyd, M.B.
Arnold Egbert Grisewood, M.B.
David Livingstone Graham, M.L.
Pheaya Kharsedji Tarapore
Roger Brighthouse Nicholson
George Staunton Husband, M.B.
James Alexander Crickshank
John Alfred Steele Phillips
Dwarkanath Dhurumji Kumar
Ernest David Simson, M.B.
Alexander Frederick Babonru, M.B.
Patrick Manson Rennie, M.B.

ARMY Department Notification No. 963, dated the 22nd October 1909, promoting Lieutenant Joseph Frain James, M.B., to the rank of Captain, subject to his passing the required Departmental Examination in October 1909, is hereby cancelled.

DRESS—British Officers—It is notified for information that the War Office have approved of the undermentioned changes in the dress of Surgeon Generals, Army Medical Staff, viz—

The sword belt waist plate sword knot, shoulder belt and pouch referred to in paragraphs 535 to 539, Dress Regulations for the Army, will be abolished for those officers and the following substituted—

Sash, web sword belt, sword sling and knot as described in paragraphs 105 and 108 to 110, *ibid*.

Surgeon Generals, Indian Medical Service, will conform with these changes, but articles in their possession may be worn out.

THE services of Captain R. K. White, I.M.S., are placed temporarily at the disposal of the Hon'ble the Chief Commissioner, Central Provinces.

LIEUTENANT COLONEL F. J. DRURY, M.B., I.M.S., is confirmed in the appointment of Principal and Professor of Medicine, Medical College, Calcutta and First Physician to the College Hospital, with effect from the 1st January 1910.

THE services of Captain H. B. Drake, I.M.S., officiating Deputy Asst. Master, Bombay, are replaced at the disposal of His Excellency the Commander in Chief in India, with effect from the 28th of January 1910.

MAJOR T. A. O. LANGSTON, I.M.S., has been appointed to act as Civil Surgeon, Jacobabad, from the 20th November 1909 in addition to his own duties.

His Excellency the Governor in Council is pleased to appoint Dr. C. Fernandes, M.D., L.M. & S. to be Honorary Physician in Skin Diseases at the Jamshedji Jijibhai Hospital for a further term of one year.

UNDER the Provisions of Articles 262, 303 (b) and 233 of the Civil Service Regulations privilege leave for three months combined with furlough for one year and two months, and study leave for seven months is granted to Captain L E Gilbert, I M S, Civil Surgeon, Taunggyi, with effect from the date on which he may avail himself of the privilege leave

SECOND Class Military Assistant Surgeon A E Hamlin is appointed to officiate as Civil Surgeon, Taunggyi, as a temporary measure, in place of Captain L E Gilbert, I M S, proceeding on leave

LIEUTENANT COLONEL T GRAINGER, I M S, to be Principal Medical Officer, Burma Division, *vice* Colonel H K McKay, C B, C I E, I M S, retired

HIS Excellency the Viceroy and Governor General is pleased to announce that His Majesty the KING EMPEROR OF INDIA has been graciously pleased to award the Kaisar-i-Hind Medal of the First Class for Public Service in India — Lieutenant Colonel Joseph Charles Stoelke Vaughan, M B, Indian Medical Service Superintendent, Campbell Medical School and Hospital, Calcutta

MAJOR O'KINEALY, I M S, has gone to Simla as Civil Surgeon. Certainly the right man in the right place

CAPT HOLDICH LEICESTER, M D, F R C S, I M S, will act as Professor of Midwifery, Calcutta, during the absence on leave of Lt Col C M Green, F R C S, I M S

MAJOR B OLDHAM, I M S, succeeds Major O'Kinealy at the 24 Piquinners, Alipore, and Lt Col C E Sunder I M S, succeeds Major Oldham as Civil Surgeon of Patna

THERAPEUTIC NOTES

THE latest edition of Hewlett's well known therapeutical notes on New Remedies, contains a lot of useful information and will well repay perusal. A copy can easily be obtained post free on application.

Many new remedies of synthetical origin are given in detail and valuable hints will be found under the different headings on the methods of prescribing, and the conditions in which these preparations will be found most useful.

'TABLOID' THYROID GLAND (STANDARDISED)

AMONG the various animal substances employed in modern therapeutics preparations of the thyroid gland occupy a prominent position. In the great majority of recorded cases of successful treatment 'Tabloid' Thyroid Gland has been used. It represents the whole substance of carefully selected healthy glands of the sheep and contains the unaltered, undiminished essential activity of the normal thyroid gland.

'Tabloid' Thyroid Gland is now issued in standardised by chemical means controlled by physiological test, so as to ensure that the desiccated gland substance, of which each product represents a definite amount contains not less than 0.2 per cent of iodine in organic combination.

'Tabloid' Thyroid Gland is issued in bottles of 100. The following strengths are available —

gr $\frac{1}{2}$ (0.432 gm), gr $1\frac{1}{2}$ (0.937 gm), gr $2\frac{1}{2}$ (0.162 gm),
gr 5 (A 0.324 gm), 0.1 gramme and 0.3 gramme

FOR EASTERN SOCIETY OF TROPICAL MEDICINE CONGRESS AT MANILA

In connection with the Congress of the Far Eastern Society of Tropical Medicine an Exhibition is being arranged one of the prominent features of which is a collection of medicaments specially adapted for use in tropical countries. It is significant of the advance of scientific pharmacy that old fashioned bulky medicines are now almost entirely superseded by preparations specially adapted to meet the trying climatic conditions of the tropics. In this branch of pharmacy Burroughs Wellcome & Co are the pioneers, and their exhibit is therefore of particular importance. It includes 'Tabloid' Medical Equipments in a variety of designs to suit tropical requirements, a wide range of 'Tabloid' medicaments, 'Tabloid' Compressed Bandages and Dressings, the important Arylisonates 'Soamin' and 'Orsudan', Hypodermic and Ophthalmic

'Tabloid' Preparations and apparatus, 'Soloid' Antiseptics, Anaesthetics and 'Soloid' Bacteriological Urine and Water Analysis Outfits, 'Wellcome' Brand Sera and Vaccines, 'Wellcome' Brand Chloroform, etc.

HEALTH EXPERTS AT THE BOVIL FACTORY

THE Earl of Arlan, K F, Sir James Crichton Browne, M D, F R S, and other Directors of Bovril Limited received a distinguished party of Health Experts on 6th November, 1909, at the Bovril Factory in London. The Company included the members of the South Eastern Section (Great Britain) Sanitary Association. The visitors were conducted in parties over the magnificent premises of the Company, and one and all commented upon the cleanliness and brightness of the Factory, and the smart appearance of the factory hands. The splendidly equipped laboratories, where the raw materials are subjected to the scrutiny of experts, were then inspected, and the visitors were shown the concentrated beef materials in the form in which they arrive direct from the factories of the vast Bovril Estates.

The visitors were much impressed by the photographs of the fine stock of the Bovril estates, and also by a large map, on which it was shown that the Bovril Cattle Estates (over 9,000,000 acres) would cover a quarter of the whole country, if situated in England.

A NEW CHLORIDE OF AMMONIUM INHALER

MESSRS HERTZ & Co, Mincing Lane, London, have placed on the market a very simple, effective and cheap inhaler as will be seen from the illustration it consists of—(1) a bottle which contains water with a few drops of strong ammonia, (2) a bent glass tube mouth piece, and (3) a bent tube dipping below the water and terminating in an open elongated glass bulb, into which is placed 8 to 10 drops of hydrochloric acid. On drawing air through the apparatus a chloride of ammonium smoke indistinguishable in appearance from tobacco smoke issues from the mouth piece. In addition medicaments, such as menthol or eucalyptus, can be used with the ammonium chloride. This inhaler will be found very serviceable in asthma, bronchitis and catarrh of the respiratory passages. The addition of "lignosulphite" is said to be of special advantage in asthmatic conditions.

Notice

SCIENTIFIC Articles and Notes of interest to the Profession in India are solicited. Contributors of Original Articles will receive 25 Reprints gratis, if requested.

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to THE EDITOR, *The Indian Medical Gazette*, c/o Messrs Thacker, Spink & Co, Calcutta.

Communications for the Publishers relating to Subscriptions, Advertisements and Reprints should be addressed to THE PUBLISHERS, Messrs Thacker, Spink & Co, Calcutta. Annual Subscriptions to "*The Indian Medical Gazette*," Rs. 12, including postage, in India Rs. 14, including postage, abroad.

BOOKS, REPORTS, &c, RECEIVED —

Sleeping Sickness Bureau. Skeleton Maps of Tropical Africa, showing the Distribution of Tsetse Flies and Sleeping Sickness. Prevention and Treatment of Abortion. By F J Taussig M D (C V Mosby Co, 1910). Administration Report of the North West Frontier Province 1908-9. The Human Eye. By K S Malkani, Hyderabad. The Practice of Surgery. Spencer and Gask (Messrs J & A Churchill, London). Price 2/7. The Etiology of Zymotic Enteritis. R Vincent, M D (Messrs Baillière Tindall & Cox). The Nurses Guide to Prescription Reading. By J G H (Messrs L & S Livingstone). Annual Report of Lady Minto's Indian Nursing Association, 1909.

LETTERS, COMMUNICATIONS, &c, RECEIVED FROM —

Asst Surgn J R Foy, Ghora Gali. Asst Surgn J Banerjee, L M S. Murulidhar, Capt Beauchamp Williams, I M S, Bombay. Capt Russell I M S, Bangalore. Major Standage, I M S, Bangalore. A Hardy, Esq, Portman Square London. Asst Surgn Ram Lal Sircar, Mandalay. Major Fink, I M S, Cliftonville, Margate. Major Prall, I M S, Lucknow. Major W D Sutherland I M S, Saugor. Civil Asst Surgn Hirdi Varanasi. Lt Col D F Keegan I M S (ret'd) Tirol. Lt Col F P Maynard I M S Calcutta. Dr W J Wanless Miraj, India. Lt Col W J Buchanan I M S, London. Lt Col D G Crawford I M S, Hughly. Major Pridmore, I M S, Rangoon. The Registrar Royal College of Physicians, Capt McGaw, I M S, Calcutta. Major H Smith I M S, Amritsar. Capt L Bodley-Cott, M D, I M S, Barisal. Major L Rogers M D, I M S, Calcutta.

Original Articles

SLEEPING SICKNESS IN UGANDA *

By E D W. GREIG, M.D., D.Sc.,

CAPTAIN, I.M.S.

In this lecture I propose to give a short account of some aspects of the investigations of the Sleeping Sickness Commission of the Royal Society (1903-05) of which I was a member, and will briefly indicate the more important work which has been done since.

In the first place, before proceeding to discuss the disease itself, it will be desirable to mention a few facts regarding the geographical position of the country where the investigations were made. The Victoria Nyanza round which Sleeping Sickness occurs, is a great inland sea, its area is the same as that of Scotland. It is now connected with the coast town of Mombassa by a line of railway through British territory. The Uganda Protectorate lies round the Northern Lake. Until recent years Uganda was practically closed to trade, but with the opening up of Central Africa it ceased to be so. In this connection Sir Ray Lankester writes† "The Sleeping Sickness of tropical Africa furnishes an example of one of the innumerable directions in which man brings down disaster on his head by resisting the old rule of the selection of the fit and destruction of the unfit, and is painfully forced to the conclusion that knowledge of Nature must be sought, and control of her processes eventually obtained." Sleeping Sickness has been known clinically on the West of Africa since 1803, when it was described by Winterbottom. In Uganda alone several hundred thousand persons have died of Sleeping Sickness recently.

Clinical and Pathological Features of the Disease—Examination of a temperature chart of a case of Sleeping Sickness shows that at first there is little or no fever, and this stage of the malady may last for long periods, but sooner or later fever becomes more marked and constant, this continues until a few weeks before death when the temperature falls below normal and remains so until the death of the patient. What is now known to be the early stage of Sleeping Sickness was formerly regarded as a separate disease, and was called Gambia fever. During this phase the patient presents practically no symptoms, and so the diagnosis becomes a matter of some difficulty. Fortunately there is one sign which is constant and develops early, namely, glandular enlargement especially of the cervical glands. The old slave traders realised the significance of this sign and they never bought slaves showing it, or they got quit of them as soon as they observed it. As the disease progresses, various signs and symptoms indicating involvement of the nervous system become manifest, and the commencement of these synchronises with the entrance of the causal agent, the *Trypanosoma gambiense* into the cerebro spinal system. The patient now acquires a curious drowsy expression. If spoken to, he answers in a hesitating manner, and his lips and tongue show fine tremours. As a rule, he is greatly wasted, his gait is uncertain, and finally he becomes completely bedridden. When this stage has been reached, the disease is invariably fatal. In some cases mental symptoms, e.g., mania, occur. The disease may be conveniently divided into two stages—

- 1 The stage of polyadenitis
- 2 The stage of polyadenitis with involvement of cerebro spinal system

* Abstract of a lecture delivered before the Medical Section of the Asiatic Society of Bengal on 9th March 1910. The lecture was fully illustrated by lantern slides.
† Kingdom of Man—Constable London, 1907.

As regards the blood in Sleeping Sickness, it is found that in uncomplicated cases there is little or no anemia, in fact in some advanced cases the total number of red corpuscles per c.c. may be above normal. As regards the white corpuscles, there is generally a well marked lymphocytosis. Auto agglutination of the red blood corpuscles has been frequently observed in Sleeping Sickness. An examination of the cerebro spinal fluid in the early stage of the disease, before the parasite has invaded it, shows that the number of cells, which are all mononuclear, is very small, but with the entrance of the trypanosome the number begins to increase and this continues throughout the 2nd stage of the disease, early in the disease only 16 cells per c.mm. of cerebro spinal fluid may be found, whilst towards the end of the malady as many 2,340 have been counted.

Pathology Nervous System—Naked eye, no striking change is noted, sometimes a slight flattening of the convolutions is observed on reflecting the dura mater. Microscopically, however, round the bloodvessels in the perivascular space a well marked exudation of cells is observed. This is very characteristic. It is probable that the filling up of the perivascular space interferes with the nutrition of the nerve cells, and the nervous symptoms may be due partly to this. *Lymphatic glands*—These show general enlargement. *Alimentary system*—The stomach in a large number of cases of Sleeping Sickness shows a striking alteration, the whole of the mucous membrane is studded with small hemorrhages which break down and give rise to numerous small ulcers. The above are the more important pathological changes met with in Sleeping Sickness.

Investigations by which Causal Agents was determined—It is now well known that the cause of Gambia fever and Sleeping Sickness is one and the same parasite, namely, the *Trypanosoma gambiense*. A full account of recent work on this parasite has been given by me in a paper in the Transactions of the Bombay Medical Congress to which those interested are referred. The *Trypanosoma gambiense* was always recovered by us from the tissues of persons suffering from Sleeping Sickness, and never from the tissues of patients affected by other diseases or in healthy persons from a non Sleeping Sickness area.

Result of the Examination of the Blood in Sleeping Sickness—To recover the parasite from the blood with certainty, it is necessary to take 10 c.c. of blood from a vein. A small quantity of sodium citrate is added to prevent coagulation. It is centrifuged for a short time only, then the clear plasma is pipetted off and is centrifuged for ten minutes, at the end of this time the fluid is poured off, and the residue which remains, is examined fresh for trypanosomes. It may be necessary to centrifuge the clear plasma a second or third time. The idea of this method is that the heavier red corpuscles sink to the bottom in the first centrifuging, whilst the motile trypanosomes remain suspended for a longer period in the clear plasma, and they in turn are thrown down by a further and longer period of centrifuging. By using this method we found *Trypanosoma gambiense* in the blood of all cases of Sleeping Sickness and never in controls. Further we examined the blood of a large number of people from Sleeping Sickness areas and from non Sleeping Sickness areas, and the *Trypanosoma gambiense* was found in the blood of a high percentage of the former and in none of the latter. These healthy persons harbouring the parasites are a great means of spread of the disease.

Result of the Examination of the Cerebro Spinal Fluid in Sleeping Sickness—10 c.c. of cerebro spinal fluid were obtained by lumbar puncture, this was centrifuged and the residue carefully examined for active trypanosomes. The parasite was never found in the cerebro spinal fluid of cases in the early stage, but always in the later stage. The onset of the signs and symptoms indicating involvement of the nervous system synchronises with the entrance of the *Trypanosoma gambiense* into the cerebro spinal system.

Trypanosoma gambiense was never found in the cerebro spinal fluid of the patients suffering from other diseases

Result of the Examination of the Gland Juice in Sleeping Sickness—If an enlarged gland in the posterior triangle of the neck be punctured with a hypodermic needle and a little of the fluid drawn off, trypanosomes will be found readily after a short search. *Palpation and Gland Puncture*, therefore, afford an easy and readily applied method for the diagnosis of the disease in its earliest stages, and this procedure plays an important part in the prevention of the spread of the disease

Animal Experiments—If some of the blood or cerebrospinal fluid containing trypanosomes from a case of Sleeping Sickness be injected under the skin of a monkey, the *Trypanosoma gambiense* appears in the blood of the monkey after about ten days. The animal shows signs and symptoms similar to those met with in cases of Sleeping Sickness in man, and after death if the brain be examined microscopically, the characteristic perivascular infiltration is found. Other animals can be infected with *Trypanosoma gambiense*. By these observations and experiments it was established that the *Trypanosoma gambiense* was the cause of Sleeping Sickness. It was next necessary to determine how it was conveyed from the sick to the healthy person.

Investigations by which the Transmitting Agent was determined—As Bruce had already shown that T. Brucei, the cause of Nagana, was carried from the sick to the healthy animal by a species of Tsetse fly, the *Glossina morsitans*, a search was made in Uganda for the presence of Tsetse flies. It was soon determined that a Tsetse fly—*Glossina palpalis*—was abundantly present in Uganda. Before proceeding to describe the investigations in detail, it will be desirable to allude shortly to the characters and habits of this fly.

Tsetse Fly—The genus is called *Glossina*, and there are nine species, the most important, from the present point of view, is the *Glossina palpalis*, as it transmits the *Trypanosoma gambiense*, the cause of Sleeping Sickness, from the sick to the healthy. The fly has a long straight proboscis by which it sucks blood, when at rest it assumes a very characteristic attitude, the wings are crossed over one another like a pair of scissors and project well beyond the abdomen. This distinguishes it from all other blood sucking diptera, especially from those belonging to the genera *Stomoxys* and *Hematopota*. As regards the habits of the fly, both male and female suck blood, which is its chief food, the fly is generally most active during the hot part of the day. The flies occur in well marked tracts of country, the so called "Fly belts" of Africa. The *Glossina palpalis* is generally found near water and requires cool shady, not too dense undergrowth, with loose dry sandy soil. The reproduction of the fly is peculiar, it does not lay a number of eggs, but a single larva which rapidly becomes transformed into a pupa, which in turn hatches out into a fully developed fly in periods varying from 17 to 72 days. Further details regarding the reproduction of the fly will be found in my paper in the Transactions of the Bombay Medical Congress. Having considered the general characters of the fly, I will explain next the investigations by which it was proved that it conveys the *Trypanosoma gambiense* from the sick to the healthy.

Epidemiological Investigation—This was carried out by the help of the Native Parliament, Government Officials and Missionaries. Instructions and apparatus for collecting flies were sent to all Native Chiefs, Officials, etc. It was requested that samples of all biting flies from their district should be sent to us as well as information whether or not Sleeping Sickness was present there. Each collection was examined for the presence of *Glossina palpalis*. If a Tsetse fly was found in a collection, a red dot was placed on a map of Uganda at the point where the fly came from. If Sleeping Sickness was present, a red dot was placed on

the same point on another map. In this way we were able to map out the distribution of the *Glossina palpalis* and Sleeping Sickness in Uganda. From a study of the two maps it was seen that the distribution of Sleeping Sickness is practically identical with that of *Glossina palpalis*. Where there is no fly, no Sleeping Sickness is found. Cases of Sleeping Sickness are frequently imported into "Fly free" areas, such cases die, but no spread of the disease takes place, although in these areas other biting flies, e.g., mosquitoes, horse flies, stomoxys, etc., are abundant. The epidemiological evidence indicates very clearly that *Glossina palpalis* is the chief, if not the only agent concerned in the propagation of Sleeping Sickness in Uganda.

Experimental Investigation—The problems which had to be solved were (1) Do fresh Tsetse flies caught in "Fly belts" containing a population severely infected with *Trypanosoma gambiense* harbour the parasite? (2) Can the *Glossina palpalis* convey the *Trypanosoma gambiense* from patients suffering from Sleeping Sickness to healthy monkeys? As a result of our experiments, we were able to show fresh Tsetse flies caught in infected areas did harbour the *Trypanosoma gambiense*, and that it could convey the parasite from the patient to a healthy monkey. A very important observation was published last year by Kleine and confirmed by Sir David Bruce, namely, that a certain number of Tsetse flies retain their infection for long periods—it may be for life. Bruce and his colleagues in Uganda have recently shown that a small drop of fluid taken from the gut of a fly fed seventy five days previously on an animal infected with *Trypanosoma gambiense* and afterwards on healthy animals was swarming with *Trypanosomes*. This fluid was introduced under the skin of a monkey and eight days later the monkey showed infection. These observations obviously have a very important bearing on the problem of the prevention of Sleeping Sickness.

Results of preventive measures in Uganda—Having considered the main results of the investigations of the Commission, it is instructive to turn to the latest report on the preventive measures, based on these investigations which have been carried out in Uganda from 1905-08. In his Annual Report, dated March 31st, 1909, the Governor Sir H. Hesketh Bell, writes: "I am thankful to be able to report that measures which have been taken during the past three years to stamp out the Sleeping Sickness are proving effectual. During 1907 the deaths from Sleeping Sickness in Uganda numbered less than 4,000. During 1908 the mortality fell to about 1,700, and it is believed that for the whole Protectorate the deaths during the past twelve months have not exceeded 2,500. No Europeans are known to have become infected since 1906." The Principal Medical Officer, Dr A. D. P. Hodges, who has had an extensive experience of Sleeping Sickness, writes: "That the preventive measures which have been applied are producing results so satisfactory as to warrant their continuance wherever practicable and their extension wherever this is possible."

The above results demonstrate the value of scientific research in fighting one of the greatest scourges of modern times.

CLINICAL REPORT ON THE BERHAMPORE ASYLUM FOR THE YEAR 1909

P. C. J. ROBERTSON MILNE,

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Introductory—I propose in this clinical report to give short summaries of some of the most interesting cases admitted into the Berhampoore

Asylum during the year 1909, prefacing each group of cases with some general comments. I should state, however, that only those cases are included which were still alive and in the asylum when I resumed charge of the institution on the 7th November 1909.

During the year 122 patients were admitted, the largest number in any year since the formation of the combined asylum. Of these, 103 were males and only 19 were females. None of the latter are of much general interest. Insanity among native Indian women is apparently distinctly less common than among the women of European countries, but it would be incorrect to base this assumption on asylum statistics alone, for these are eminently fallacious if taken as an index of the prevalence of insanity in this country. Were it not for the *purdah* system, it is highly probable that the numbers of our women patients would be very much increased. But even taking that into consideration and as the result of private inquiries, the fact remains that the women of India are less liable to mental disorders than are their European sisters.

I—TOXIC (HEMP-DRUG INSANITY)

In Bengal the form in which this drug is chiefly consumed with disastrous mental effects is *ganja* which is smoked along with tobacco. Of the 103 male patients admitted during 1909, in no fewer than 32 could their insanity be definitely assigned to previous *ganja* indulgence. Insanity due to hemp-drugs always takes the form of a state of mental exaltation never of mental depression. Accompanying and frequently succeeding this mental exaltation, there is a certain degree of mental enfeeblement which possesses distinctive characters. Insanity consequent on hemp-drug indulgence may be classified as follows—

A Ganja Intoxication—This is really a mild state of mania which may last for a few hours to a few days. It is to be recognised by the tendency to talkativeness of a foolish, delusional and often incoherent character and to the performance of acts of mischief or indecency often of a highly childish nature. The condition is, however, quite different from the intoxication produced by alcohol. The gait is but slightly ataxic, and the movements and actions of the *ganja* inebriate exhibit a purposiveness not seen in the alcoholic. It should be observed that Indian hemp is often deliberately taken by a person prior to the committal of a definite crime which he may have decided upon while still thoroughly sane. These persons should be treated as criminals and not as insanes, and it may be here remarked that the fact that a person was under the influence of *ganja* should not be accepted as palliation for an offence. It is not so with alcohol, and there is no reason why the *ganja* inebriate should be differently treated. These cases of *ganja* intoxication are rarely

seen in our Indian asylums, but, during the year under review, there were admitted into the asylum three men who had thus been afflicted, all of whom were sane on admission.

(1) No 720—M H, aged 35, Bengali Mussulman, a native of Darbhanga, admitted June 6th, 1909. Twelve years ago this man went to Trinidad as servant to a gentleman who had sugar plantations there. Two years ago he returned to India proceeding to his home in the district of Darbhanga. He then possessed Rs 250 which, however, his ungrateful relatives seized, having outcasted him for having left India. He then left his village and went to Rungpur where he served as *Chupras*. Eventually in April last with Rs 16 in his pocket he returned to Calcutta with the desire of emigrating again, but falling in with some men, he was induced by them to indulge in *ganja*. Intoxication followed during which he had an altercation with a police constable who arrested him as an insane. He was perfectly sane when admitted here, and has continued thus, showing no signs whatever of mental incapacity. Arrangements are in progress for his discharge, but his friends will have nothing to do with him.

(2) No 769—N M, a native of the Madras Presidency, who has become converted to Islamism. For nearly forty years he has served as a bearer or *khimmat* gar to the officers of British Regiments. He is now 60 years of age, and this is not his first attack of *ganja* intoxication. Seven years ago he spent six months in the Dullunda Asylum. He was admitted here on the 11th November 1909, and exhibited then no symptom of mental disorder, but had the appearance of a person recovering from a debauch. The history obtained through the police was to the effect that he had returned from Jubulpore to Dum Dum in the hope of getting employment and meeting some old friends, they gave him *ganja* to smoke, and he stayed with them indulging in *ganja* for two days. Then he is unable to corroborate the police record any further, for when he came to his senses, he was in jail charged with theft having been caught in an officer's bungalow pilfering towels from a bath room. He is about to be sent for trial and will, I hope, not return here.

(3) No 778—D N P, aged 19, a young Hindu cultivator from the district of Muzafferpore, remarkably well educated for a person of his class and of distinctly superior intelligence but weak willed, such a youth as might be easily led astray. In April of last year, this lad was told by his father that he must make his own way in the world, whereupon he proceeded from his home to Bhagalpore where he endeavoured to obtain employment in the Settlement Office. Failing this, he drifted to Calcutta where his resources soon became exhausted, and he was compelled to make up cooly's work on the railway for a livelihood. He worked there for some time, but unfortunately for him some of his fellow workers were given to *ganja* indulgence and induced him to join them. The result of this was that he became intoxicated, was dismissed from his employment, and was eventually arrested by the police for committing a nuisance within a Railway enclosure. He was declared to be insane, and after the usual official delays he was sent here. He was in an absolutely sound mental condition on arrival and has continued to be sane. The visitors of the asylum have recommended his discharge to Government, and arrangements are being made for him to be sent to his home.

B Acute Ganja Mania—This is an acute state of mental exaltation and confusion, characterised by noisy garrulousness, fleeting delusions of grandeur and often also of persecution, restlessness, gesticulation, grimacing and sometimes by indecency and destructiveness. Sleeplessness is also prominent. Orientation and memory are

both bad the patient neither knows nor cares where he is, whence he has come or how long he has been in his present location. These cases have a duration of about 14 days to two months, improving gradually as a rule but sometimes recovery is extraordinarily abrupt. The recovery is rarely complete, some degree of weak-mindedness generally remaining. The following are examples of this condition admitted during 1909

(4) No 701—A C S, a Sikh, admitted from Calcutta in a state of acute *ganja* mania, talking incessantly, exhibiting various delusions of exaltation and persecution. He had no knowledge where he was or whence he had come, indeed, he fancied himself in Amritsar, and said that he had been here several years. He was extremely filthy in his habits and very irritable. He continued thus for about two months, and then within a week recovered completely and became quite sane and has continued thus. He is about to be discharged. The rapid recovery in this case is remarkable. Warnock, of the Egyptian Asylum, regards this as a most important clinical sign of hemp drug insanity in Egypt.

(5) No 776—H B, a native of Shahabad, also admitted from Calcutta on the 5th December 1909. On admission his condition was similar to that of the last patient, but he was much noisier, especially at night. He was much happier, his delusions being very much those of exaltation, for he declared that he was a Judge, and that the asylum was the High Court of Calcutta. He is very much given to posing in statuesque attitudes and is distinctly cataleptic. His comprehension of and reaction to simple questions is good, but his memory for place and time is very defective. He is constantly asking for *ganja*. A definite history of his indulgence in this drug has been received from the police. In the first week of this year, after some 26 days in the asylum, he recovered and is now fairly sane, having lost his delusions, and recovered most of his memory except for the time of his illness. Grief at the deaths of his father in law and his mother within a week was the cause of his indulgence. The former, by the way, was a *Sanyasi*, who died suddenly from spasm of the glottis while inhaling *ganja* smoke. Ewens has recorded two such similar cases.

C Chronic Ganja Mania—The symptoms of this are identical with those of acute mania with which, of course, the condition commences. In these cases the patient, instead of recovering, lapses into a state of mild sub-acute mania in which a tendency to garrulity, often abusive and extreme irritability are the outstanding features. Fleeting delusions of exaltation are present, and memory for time and place are always very defective. This condition may continue for many years, and terminates generally in a state of weak-mindedness very rarely in complete dementia.

(6) No 752—G C B, aged 46, a Bengali Brahmin, a well known character in this province. This man was well educated, and for many years was a successful teacher in a large school in the district of Hooghly. He gave this up to become a *Sadhu* and an astrologer. At the latter game he was most successful, but indulging too freely in hemp drugs, he became discredited and eventually was a vagabond loafer. He was arrested very properly for cheating two of his humble countrymen, and being found insane, was acquitted on this ground and sent here in December 1906. His mental condition was one of delusional exaltation and a readiness to converse in English or Bengali by the hour. He was rather bad tempered but never actively aggressive. A

nephew applied for his release on security, and he left the asylum on the 2nd June 1909, but returned on the 25th September 1909 in a state of sub-acute *ganja* mania in which he continues. If taken notice of or spoken to, he begins to talk without ceasing until he is left to himself. He states that he is "not cracked," that he is the greatest astrologer that ever existed, that he is the President of the Royal Society, and declares that he will confer on me the dignity of an F R S together with a "six tolah gold medal" if I will only allow him to leave the asylum. He is now very irritable, and assaults any of the other patients who interfere with him, especially those who jeer at what he terms his "Scientific observations." I am afraid his condition is a permanent one.

D Weak-mindedness—This is a very remarkable condition of hemp-drug insanity. It has been described by Warnock of the Cairo Asylum under the name of Cannabino mania. It is the insanity which results from constant indulgence in *ganja* to excess. In India it might be termed *Sadhuistic* insanity, for it is the insanity with which so many of the religious ascetics of India are afflicted. I am of opinion that very few indeed of these vagabond *Sadhus* and *Fakirs* are sane, some suffer from religious mania or melancholia, but the majority are Cannabino maniacs. As such, they are a very great menace to the welfare of the country and are, as has been stated elsewhere, very largely responsible for not only much of the insanity but also much of the serious crime of this dependency. Irritability, an extremely defective memory for place and time, mild, foolish delusions of grandeur which are never fixed but vary from day to day or week by week, a tendency to loquacity and to indolence are the features of this type. As in all varieties of hemp-drug mental disorders, general sensibility is diminished. It is this diminished sensibility which enables *Fakirs* and *Sadhus* to undergo such painful ordeals as lying on beds of nails, etc. Those who are interested in this subject should read what Dr. Campbell Oman has to say in his book "The Mystics, Ascetics and Saints of India," in which, however, I consider that he depicts these persons in a much too favourable manner. Many of the cases of this form of *ganja* insanity are either *Sadhus* themselves or are disciples of *Sadhus*. No fewer than eight men have been admitted during 1909 exhibiting this condition.

(7) No 690—M D, a native of Philibhit, in the United Provinces, admitted from Calcutta a young man, aged about 22 years of age, was admitted here on the 23rd February 1909 in a state of acute mania, which has subsided into his present condition of weak-mindedness in which he has now continued for eight months and in which he is likely to continue. This youth was an opium cultivator who five years ago was induced to leave his village and his friends by a *Sadhu*, Godabari Daji, who constituted him as his disciple. He wandered with his *Guru* to various shrines and soon learnt habits of *ganja* smoking, etc. Eventually he came with his *Guru* to Calcutta where they parted company, the *Guru* going to Puri, while M D remained at Kali ghat. One day he was arrested attempting to steal some articles out of a house and was found insane and was sent to the asylum where he has remained. He has recovered as much as he will ever do, and his future

disposal is a matter of some difficulty. So far we have failed to get into communication with his relatives who have doubtless long since given him up as lost.

II—TOXIC (ALCOHOLIC) INSANITY

Alcohol as a causative factor in the production of mental disorder is becoming of increasing importance in India. I do not intend to imply by this that European liquors are being more freely imbibed by natives of India in these days, for I do not think that this is so, if we except the class of our domestic servants. But there is, I think, more intemperance in native liquors—*tari*, *mod*, etc., than formerly among all the lower castes who appear to me to be indulging in liquor regularly and not only, as in former times, on festival days. No pure case of alcoholic insanity has been admitted during the year, but there have been several in which alcohol was a very prominent factor of which the following is an example.

(8) No 708—P G B, a Bengali Kayasth, aged 27, a native of the district of Hooghly, admitted on the 19th April 1909, with a history of having been insane since the age of 15 (insanity of adolescence in all probability), and to have been exceedingly intemperate with native liquors. On admission he was in a state of subacute mania, talking very nonsensically and incoherently with marked delusions of grandeur and also of persecution, complaining bitterly of injury by various persons. He was also subject to visual and auditory hallucinations, and was constantly haranguing invisible persons. At times he was very noisy, at others very emotional and frequently lachrymose. He was very dirty in his habits, destructive to clothing which he declined to wear. After four months he lapsed into a quiet state of great depression in which he continues. He is morose, very irritable and apt to be aggressive if thwarted in any way.

III—EPILEPTIC INSANITY

Eight men were admitted during 1909 suffering from this form of insanity. With two exceptions they were all of the maniacal type. The exceptions may be fairly classed as examples of epileptic melancholia. Three of them were criminals,—two having committed acts of personal violence—one being charged with murder, one with grievous hurt and one with house-trespass.

(9) No 684—M M, a Southal, aged 23, who has suffered from epilepsy since the age of 16. His father and his paternal uncle were both insane and died in this condition. I have not been able to ascertain whether either of them suffered from epilepsy. He was admitted on the 23rd January 1909 in good general health with no stigmata such as epileptics so frequently present. He is in a state of great morose depression which is always increased after his seizures. These are of the major type and are very severe, for the patient often remains in a state of unconsciousness for fifteen minutes after the convulsions have ceased. He is very dull and speaks in a slow monotone almost in syllabic fashion. He can only answer a few simple questions. He does not know where he is or whence he has come and his memory may be described as absent. He is becoming rapidly demented and medication has had no effect so far in reducing the number of his seizures.

(10) No 698—K S, a Nepali from Darjeeling, where he was a domestic servant, admitted on the 17th March

1909. He is a young man whose condition had become much aggravated owing to his great addiction to alcohol. On admission here on the 17th March 1909, he was in a state of grandiose mania, very excited, noisy and destructive. He was very filthy in his habits and was indifferent to everything but his food, which he ate in uncleanly fashion with great avidity. He continued thus for a month when he had a severe epileptic seizure, followed by five others at short intervals. After these he became quieter, and since then he has continued in a fairly rational state. He is now comparatively sane and has had no more fits since April last. He is well educated and can write and read English. He employs himself very usefully in the asylum. He tells me that he has been liable to epileptic seizures at long intervals ever since he can remember. This is a case of great interest which exhibits very markedly the effects of alcoholism in an ordinary sufferer from epilepsy. Had he not indulged so freely in liquor, it is possible that he would have never been sent to an asylum.

IV—GENERAL PARALYSIS OF THE INSANE.

This is, as every one is aware, so far a comparatively rare disease among natives of India. But it seems as if the experience of Dr Wannock, of the Egyptian Asylum at Cairo, is to be repeated in India. Ten years ago the disease was said to be unknown among native Egyptians, now it is fairly frequently met with. The case which I record here is an undoubted example of the convulsive type of the disease (such as has been described by Stoddart in his recent work—"Mind and its Disorders"), and it is remarkable in having occurred, not in a denizen of town such as Calcutta, but in a humble cultivator from the district of Sambalpoore. I have two or three other cases in the asylum who may on further observation turn out to be cases of general paralysis.

(11) No 735—D S, aged 30, admitted from Sambalpoore, on the 9th July 1909. This man was formerly an industrious cultivator, but left his village some seven years ago and contracted dissolute habits. No evidence of previous venereal infection was forthcoming, and the police were unable to say whether or not he had indulged to excess in alcohol. Having become a vagrant, he was constantly committing petty thefts. He was eventually arrested for thieving and found incapable of standing his trial. On arrival here it was noted that he exhibited marked ataxia of arms as well as legs, indeed he could hardly walk. His knee jerks were absent and the Argyll Robertson phenomenon was present. He was very dull of comprehension and his speech was slow and slurring. He was unaware where he was, and apparently considered that he was still in Sambalpoore. He was very dirty, passing his urine and feces wherever he happened to be placed. Mental and physical deterioration progressed rapidly and especially so after an epileptic seizure on the 10th October 1909. When I took over charge of the asylum he was then in the last stage of the disease. On the 9th December 1909, he had another epileptic seizure, followed in rapid succession by others, and eventually the patient lapsed into a condition of status epilepticus in which he died. The *post mortem* appearances were typical of a great excess of cerebro spinal fluid, thickened opaque adherent pia mater, and alternated wasted convulsions. The granular condition of the ependyma was also present. Portions of the brain have been preserved and are being prepared for histological examination.

V—SYSTEMATISED DELUSIONAL INSANITY (PARANOIA)

There have been two cases of this admitted into the asylum during the year. One man returned to jail and was only under my observation for a few days so I shall not at present record his case. The other is a remarkable example of paranoia of a most dangerous kind, and I am indebted to Major Hunter, of the Presidency Jail, and to Mr. Halliday, Commissioner of Police in Calcutta, for a very complete history of this well-known Calcutta character.

(12) No 780—J S G, a Eurasian clerk, a native of Madras, aged 30. This young man was well educated in Madras by his father who is in the employ of Government. At the age of 21 he sustained a fracture of the skull, the scars of the injury remaining on his forehead. He was a month in hospital on this account, and although his relatives will not admit it, it is possible that this had a great deal to do with his eventual breakdown. There is no history of insanity in the family. Some six or seven years ago he came to Calcutta having obtained employment as clerk in a well known firm there. It is quite evident that while there he began to have ideas of his own importance which were not cherished by his employers. After some months he resigned, evidently considering some work which one of the head of the firm asked him to perform as being beneath his dignity. Against this man he had since held persecutory delusions of the most villainous character. For the last five years, he has been in the ranks of the Calcutta "loafers", and has been an endless source of trouble and worry, not only to the police, but also to other persons particularly to the gentleman belonging to the firm above noted whom he has annoyed persistently by letter and otherwise and whose life he has frequently threatened. Since July 1907 he has been more or less constantly in prison on charges of trespassing into restaurants and obtaining food for which he could not pay. His last sentence was, however, one of rigorous imprisonment for a year for attacking a Babu, who had befriended him, with a knife. While serving this term of imprisonment he began to exhibit definite evidences of insanity which, however, did not become pronounced until after his discharge from the jail. He was eventually sent here on the 20th December 1909 when I made the following note about him.

A respectful young man with a very suspicious expression. He is emotional and very voluble. His speech is coherent, but he is fond of using words such as "subterfuge" without being aware of their correct meaning or usage. His comprehension and memory are excellent. He has marked delusions of persecution particularly against Mr. X of the firm in which he had a brief career. He accuses Mr. X not only of being responsible for all his troubles, but of various sexual crimes towards the lady of his attachment. He states also, truthfully I fear, that the Commissioner of Police in Calcutta regards him as an undesirable.

Everyone in Calcutta with whom he has come in contact has conspired, at the instigation of Mr. X, to have him regarded as insane. He is not insane and he deserves to be better treated, considering that his grand-father was Lieut General of the Forces in Madras (a delusion of grandeur). While in jail he desired the Superintendent to take him into his own house as a "voluntary boarder", and he has made the same request to me. He is very unsettled, and spends his time writing letters to various ladies and gentlemen in Calcutta which are simply a reiteration of his grievances against Mr. X, and is at present compiling a long petition to His Honour the Lieutenant Governor which will be a very valuable record for his case.

His people in Madras are anxious that he should be transferred to the asylum there. The only chance of possible recovery that remains to this man is that he should be taken out of this province permanently. These cases are, however, very intractable and rarely recover.

VI—HOMICIDAL MELANCHOLIA

Some months ago Major Ewens published an extremely interesting paper on the frequency of this condition as seen in our Indian asylums. These cases are very common here, and some day I hope to publish a further and more complete account of them in a review of all the conditions of insanity in which homicidal acts occur. I have already collected records of nearly 150 cases, but I am much hampered by the difficulty in obtaining in this province complete records of the crimes committed by insanes. This, however, is being rectified. During 1909 six men were admitted suffering from melancholia of a homicidal character. Four of them had actually committed murders, one had attempted murder, while the other committed a serious assault with a dangerous weapon.

(13) No 747—R R M, a Bengali Satgope, from the district of Burdwan, aged 24, admitted on the 27th August 1909. This man's parents both died when he was a child, and he lived with his maternal uncle working as a cultivator. There is no history of any insanity in the family, and he has not been addicted to liquor or to drugs. About five months prior to admission to jail he became depressed and would not work. He seemed to have lost interest in everything around him for no apparent reason, for considering his station in life, his circumstances were quite good. One evening, having been sent for some time outside his uncle's house, he suddenly got up and seizing an axe killed two of his cousins before he could be disarmed. He seemed to be in a dazed state and quite unaware of what he had done. On admission here it was noted that he was in a state of dull depression, and it was with the greatest difficulty that he could be got to answer any questions. He stood staring vacantly in front of him with his hands clasped in an attitude of supplication, only waking up from his lethargy by repeated interrogation. His memory could not then be tested, but since then he has improved somewhat, and it is found to be fairly good except for his crime which he denies. But it is still very difficult to get him to reply to queries, and he remains in a dull morose state, never speaking to anyone and preferring to be left alone without interference of any kind.

(14) No 777—Y M, aged 26, a Bengali Mussulman, from the district of Jessore. No hereditary tendency to insanity. A humble cultivator living with his wife and family. He was re-admitted here after trial on the 9th December 1909.

In 1906 for no reason that could be ascertained, this man became insane, declining to work or to support his family, saying that he was ill. One day early in 1908 he suddenly attacked his little daughter while she was asleep with a *dao* and killed her. He was immediately arrested, and eventually was admitted here on the 7th July 1908. He was then in a state of great depression, weeping constantly and bitterly. He answered questions rationally, and his memory is good except for details of his crime whose nature he does not apparently realise. He improved very slowly, and on the 20th August 1909 when he was told by the Superintendent that he was charged with killing his own daughter, he exhibited great distress and remorse, and for many days he was acutely depressed. He gradually recovered and on the 7th September 1909 was declared

fit to stand his trial. He then left the asylum and returned on the 7th December 1909. He is now fairly sane but is very emotional at times.

VII—PHTHISICAL INSANITY

Dr Clouston has described a clinical form of insanity to which he gives the name phthysical and goes so far as to say that it forms 3 per cent of all cases of insanity. This clinical variety is not unknown in India, and I have seen a good many cases. Beggars are especially liable to it, as long as they can eke out an existence by alms sufficient to keep them in fair health, they do not, as a rule, suffer mentally provided they do not indulge in drugs. But, should they become afflicted with tuberculosis, the progressive asthenia of that complaint makes them less liable to follow their calling. This preys on their minds and they suffer from an invariable melancholia. One such case was admitted during 1909. Three other patients whose insanities were not phthysical in type were also admitted during the year, all in advanced stages of the disease and all have died since admission. Tuberculosis is four times commoner in the insane than in the sane, and is, of course, fostered by their association and their habits.

(15) No. 688, a person whose name and antecedents have never been correctly ascertained and who appeared to be a young Mussulman, was admitted from Calcutta on the 21st February 1909. He was in very poor health, weighing only 94 lbs, and exhibited definite evidences of pulmonary tuberculosis. He had a sad expression and stood gazing fixedly on the ground, not raising his head on being interrogated. He answered with hesitation a few simple questions, giving his name as Karam, but he resented being questioned or being interfered with in any way. He has since shown himself to be very irritable and suspicious. His habits are not cleanly, and in a morose state of melancholy he remains in one place all day, taking no interest in anything. By careful feeding and attention his physical condition has progressed very slowly, and I doubt whether he will live much longer.

NOTE ON THE PURIFICATION OF NATIVE SEWAGE UNDER DEFINED CONDITIONS

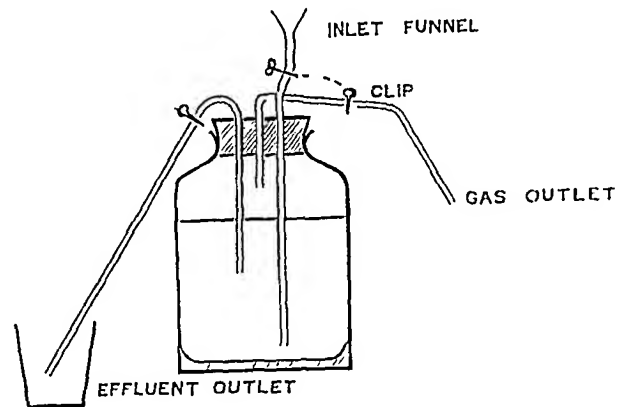
By W. W. CLEMESHA,

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WHILE Dr Fowler was present in Bengal in the summer of 1906, a very interesting series of experiments were commenced on the results obtained from small model septic tanks, making use of a Winchester quart bottle as the tank. Two such models were started up. To these a measured quantity of a manufactured domestic sewage, the chemical contents of which was known, was added daily, the effluent that came over being analysed from time to time. In this particular experiment one bottle was inoculated with a sludge from a working septic tank latrine and the other was not. The early analyses demonstrated the fact that the bottle that had been inoculated gave a superior effluent to

the one that had not been so prepared, the effluent from this latter being distinctly more offensive in odour than that from the inoculated tank, as time went on, however, the quality of the two effluents became very similar. Owing to an accident these little models were spoilt just when they were giving most excellent results and it became necessary to begin afresh. Consequently it was decided to extend the scope of the experiment somewhat and to slightly modify the arrangements.



Thus, instead of using Winchester quart bottles, four large carboys were procured, each holding exactly 3 Winchester quarts & a piece. These were fitted up as regards inlet and outlet pipes in exactly the same way as Dr Fowler's models, vide the figure, all were inoculated with septic tank sludge from a working installation, and a varying quantity of the same sewage was admitted to each bottle. The bottles were labelled tank I, tank II, tank III, etc. Into tank I one Winchester quart of crude sewage per diem was allowed to run very slowly, into tank II a bottle and a half was admitted, into tank III two bottles, and into tank IV 3 bottles. Consequently it will be observed that the period during which the sewage remained in the tanks in each case was—

in tank I, 3 days,
in tank II, 2 days,
in tank III, 36 hours, and
in tank IV, a day or 24 hours

The object of the research was primarily to find out what was the optimum rest in the tank for the sewage chosen, or in other words, which of these various tanks gave the best effluent. The experiment was commenced in October 1906.

At the same time as the tanks were started up two small contact beds were constructed, as it seemed desirable to nitrify the various effluents and to ascertain if any difficulty in carrying out this process would be met with. Accordingly two zinc buckets were taken, ordinary half inch taps were soldered in the bottom so as to permit of draining away the effluent after contact. Each contained about 6 of a cubic feet of material. At the bottom of the buckets about 2 inches of coarse material were placed to facilitate draining, the

particles being between one and two inches in size, but the bulk of the material used was very fine, it would pass $\frac{1}{4}$ th of an inch mesh, but all that passed $\frac{1}{16}$ th of an inch was rejected. Both primary and secondary tanks (contact-bed I and contact-bed II) were filled up with the same material. The method of working was as follows—

A mixture of the effluents from tanks I, II, III and IV were put on to contact-bed No. I at 10 a.m., at 2 p.m. the stopcock was opened and the contents allowed to run direct to the contact-bed No. II. The effluent was allowed to remain in contact bed No. II for a period of 4 hours, and was then allowed to flow away. Consequently, the effluent had two periods of 4 hours contact in each little bed, the material having 20 hours to aerate and recover. The total fluid capacity of each bed was about 1400 c.c. or 14 litres.

sewage has been prepared in the following simple way. An ordinary two-seated latrine was constructed in the compound of the Animal Vaccine Depot, Entally. In the early morning, when most of the coolie establishment visit the latrine, 10 individuals were counted into one of the compartments, and the urine and faecal matter collected. When 10 individuals have visited the latrine this compartment was locked up, the remaining one sufficed for the needs of the rest of the coolies. The urine and faecal discharges of these 10 users were conveyed to a small tank where they were roughly mixed with 50 gallons of water. So it will be observed that, although a very concentrated sewage was obtained, it was reasonably constant in its constituent parts, the variation from day to day being not very great. It will be obvious that the whole urine of 24 hours does not

TABLE I

Date	CRUDE		TANK I	TANK II	TANK III	TANK IV	CONTACT BED I	CONTACT BED II
	4 Hours' Oxygen Test	Chlorine	4 Hours' Oxygen Test	4 Hours' Oxygen Test	4 Hours' Oxygen Test	1 Hours' Oxygen Test	1 Hours' Oxygen Test	1 Hours' Oxygen Test
7th August 1909	7.41	6.6	2.16	2.88	3.07	2.05	1.00	1.80
9th " "	7.81	6.6	2.29	3.33	2.50	2.08	1.06	1.01
10th " "	7.34	6.4	2.76	2.44	2.13	1.70	1.27	.85
11th " "	8.29	6.0	2.66	3.13	2.87	2.02	1.01	1.38
12th " "	11.97	6.0	2.72	3.13	4.07	4.40	2.17	1.76
13th " "	10.09	8.4	2.25	3.01	3.07	4.10	2.25	1.85
14th " "	11.58	8.4	2.04	2.45	2.86	4.76	1.00	1.22
16th " "	10.86	7.2	2.51	3.04	3.71	3.04	2.51	1.85
17th " "	8.31	7.8	2.08	2.59	3.63	4.28	2.20	1.29
18th " "	14.28	8.4	2.52	2.85	4.03	4.20	2.01	1.68
19th " "	16.64	6.8	2.21	3.20	3.52	5.36	2.25	1.20
20th " "	9.23	6.6	1.76	2.41	3.73	4.28	1.86	1.53
21st " "	9.04	6.8	1.81	2.10	2.71	3.51	1.81	1.50
23rd " "	17.50	7.4	2.80	3.15	4.47	4.21	1.84	1.18
24th " "	13.20	7.0	5.00	6.80	6.40	7.00	2.80	2.20
25th " "	9.74	7.2	2.15	2.35	2.77	3.89	1.53	1.02
26th " "	8.49	6.8	2.04	2.04	2.00	2.00	1.07	.75
27th " "	11.57	8.8	2.21	4.42	4.52	6.01	1.79	1.26
30th " "	11.17	6.0	2.79	2.79	3.97	4.41	1.31	1.03
31st " "	9.53	6.6	3.35	3.89	4.16	1.83	1.07	.80
Average	10.75	7.1	2.51	3.10	3.63	4.05	1.85	1.32

In November 1906 I proceeded on furlough and subsequently took up an appointment in Madras, returning to Bengal only in August 1909. It was gratifying to find that, during the whole course of this time, a period of nearly three years, these model septic tanks and contact-beds have been worked on the lines laid down at the commencement without, as far as I can ascertain, a day's intermission. Consequently, sufficient time having elapsed for the models to thoroughly ripen, the results of investigations on the various effluents may be looked upon as those likely to be obtained from any septic tank installation that is steadily and regularly worked for a long period of time with a similar sewage, with the proviso that these to be discussed were obtained from small laboratory models.

It is necessary to say a few words about the sewage used in this experiment. A 5-gallon

form a part of this sewage, but only the urine which is passed at the time of the early morning visit to the latrine. Thus it is probable that only about 25 per cent of the total passed in the 24 hours found its way into this experimental sewage. The chemical analysis of the sewage prepared as described will be found in table II and it is with this sewage that all these results have been obtained.

A preliminary set of investigations were undertaken making use of two simple tests only, *viz.*, the amount of oxydisible matter as shown by the oxygen absorption in 4 hours from an acid solution by potassium permanganate and the chlorine estimation. Table No. I gives the results obtained from crude sewage, the effluents of 4 tanks and the two contact-beds.

The tests carried out on the mixed effluent (that is the effluent of contact-beds I & II) were

done with the use of urea in order to eliminate the nitrites from the estimation. The average figures given from 20 comparative estimations show that of the 4 tanks, tank No I is decidedly the best, and it gives about 75 per cent of purification calculated on the 4 hours' oxygen figure of the crude sewage—this is a distinctly good result. Tank No IV gives the worst result. Contact-beds Nos I & II were fed with a mixture of all the four effluents and show a very considerable purification obtained by this simple means. The chlorine figures are used simply as checks. They do not vary in any of the effluents. Further remark need not be made on these

results as the subsequent more detailed analyses are of greater importance—

TABLE II—*Entirely Crude Sewage*

Date	Chlorine	4 Hours' Oxygen Test	NITROGEN	
			Saline and Free Ammon	Albumenoid Ammon
28th Sept 1909	7.0	12.27	2.84	3.02
29th " "	6.8	10.15	1.97	2.31
30th " "	6.8	10.38	1.97	2.33
2nd Oct " "	7.2	10.85	2.71	2.50
4th " "	6.8	10.36	2.03	2.97
Average	6.9	10.80	2.30	2.49

TABLE III

Date	TANK I				TANK II				TANK III				TANK IV			
	4 Hours' Oxygen Test	Chlorine	NITROGEN		4 Hours' Oxygen Test	Chlorine	NITROGEN		4 Hours' Oxygen Test	Chlorine	NITROGEN		4 Hours' Oxygen Test	Chlorine	NITROGEN	
			Saline and Free Ammoniacal	Albumenoid Ammoniacal			Saline and Free Ammoniacal	Albumenoid Ammoniacal			Saline and Free Ammoniacal	Albumenoid Ammoniacal			Saline and Free Ammoniacal	Albumenoid Ammoniacal
4th Sept 1909									5.57	6.4	8.00	76	5.65	6.4	6.93	80
6th " "	2.67	6.6	8.66	63	3.74	6.6	8.00	66	2.69	6.4	4.73	42	3.00	6.4	4.00	60
8th " "																
9th " "	2.58	7.4	5.77	33	2.72	7.4	5.70	41	3.25	6.8	6.93	53	4.00	6.8	6.50	61
10th " "	2.34	6.8	8.00	28	3.95	6.8	7.13	35	2.60	6.0	6.50	37	3.31	6.0	6.12	66
11th " "																
13th " "	2.64	6.8	8.00	33	2.89	6.8	6.93	41	5.26	7.6	5.73	68	5.45	7.6	5.20	103
14th " "																
15th " "	2.04	6.6	8.67	26	2.61	6.6	8.00	44								
23rd " "																
Average	2.45	6.8	7.82	36	3.18	6.85	7.21	45	3.86	6.6	6.37	55	4.28	6.6	5.75	74
Rest in Tank 3 days					Rest in Tank 2 days				Rest in Tank 36 hours				Rest in Tank one day or 24 hours			

TABLE IV

Date	Mixture of Effluents from Tanks 1, 2, 3 & 4	CONTACT BED No I					CONTACT BED No II				
		4 Hours' Oxygen value	Chlorine	NITROGEN			4 Hours' Oxygen value	Chlorine	NITROGEN		
				Saline & Free Ammoniacal	Albumenoid Ammoniacal	Nitrous & Nitric			Saline & Free Ammoniacal	Albumenoid Ammoniacal	Nitrous & Nitric
15th Sept 09	3.45	1.95	7.0	1.04	24	85	1.33	7.0	42	14	1.66
16th " "	3.11	1.11	6.8	1.28	18	1.16	70	6.8	32	12	2.65
19th " "	3.26	1.35	6.6	1.73	25	61	79	6.6	1.11	17	1.10
21st " "	3.42	1.14	6.8	83	22	1.06	69	6.8	32	10	3.15
23rd " "	3.67	1.77	7.0	64	22	1.33	1.09	7.0	25	16	2.20
Average	3.38	1.47	6.8	1.10	22	1.00	.92	6.8	48	14	2.15

The quantity passed through the contact beds is 1,400 cubic centimetres, or about a litre and a half, this about is 3 of a gallon. The quantity of material in the beds is about 6 of a cubic foot, that is about 17 litres.

TABLE V
Comparison of Average Results

	Col 1		Col 2	NITROGEN				
	4 HOURS' OXYGEN TEST			Col 3	Col 4		Col 5	
	Actual	Percentage purification on crude figure			Albumen	Ammoniacal		Nitrous & Nitric
Crude sewage	10.80		6.9	2.30	2.49			
Tank No 4	4.28	60.0 %	6.6	5.75	74	70.2 %		
Tank No 3	3.86	64.2 %	6.6	6.37	55	77.9 %		
Tank No 2	3.18	70.5 %	6.8	7.21	45	81.9 %		
Tank No 1	2.45	77.3 %	6.8	7.82	36	85.5 %		
Contact Bed No 1	1.47	86.4 %	6.8	1.10	22	91.1 %	1.00	
Contact Bed No 2	.92	90.5 %	6.8	.48	14	94.4 %	2.15	

Contact Bed No 1 gives 56.5 % of purification on the average 4 Hours' Oxygen figure of mixture of effluents put into the bed. The figure is 3.38 parts per 100,000.
Contact Bed No 2 gives 72.8 % on the same basis.

Tables III, IV and V give a more detailed analysis of the crude sewage, the effluents of the 4 models and of those of the 2 contact-beds. In each case 5 full analyses were carried out. Table V gives a statement of the averages of the results obtained. It is not necessary to deal with any single analysis, but attention should be directed to Table V, which gives in graphic form the epitome of the results obtained.

In column 1 the actual 4 hours' oxygen figures and the percentage purification calculated on the 4 hours' oxygen of the crude sewage are set forth. The steady falling off in oxidisable matter in the effluents should be observed in the figures as they are set down. Of the 4 tanks it will be observed that tank No I (that is the one with 3 days' rest) gives not only the best result, but an extraordinary amount of purification, no less than 77.3 per cent of the oxidisable matter has been broken down during the period of rest in the tank. The contact-beds Nos I & II further reduce the amount of easily oxidisable matter as well as nitrify a great deal of the saline ammonia. The final effluent from contact-bed No II having 90 per cent of its oxidisable matter rendered innocuous. The chlorine figures which only serve as a sort of check vary very little.

In column 3 the saline ammonia figures are of great interest even with a short rest in the tank. As 24 hours, the saline ammonia is more than double the amount that already present in the crude sewage. In tank No I the saline ammonia figure has reached as much as 7.82 parts per 100,000 of this amount the contact-beds nitrify all but .48 parts per 100,000. The albumenoid ammonia figures demonstrate the great activity of the tanks. Even with only a 24 hours' rest the 70 per cent of the albumenoid ammonia has disappeared. Considering the strength of the sewage this is a very satisfactory result. In tank No I, where the period of rest is 3 days, 85 per cent of the total albumenoid ammonia is so changed.

The amount of nitrification carried out by the material in the contact-beds is also very considerable, as will be observed from the above figures *vide* column 5.

These results may, therefore, be taken to be about the maximum obtainable with this very simple apparatus dealing with so concentrated a sewage. In all cases it will be observed that tank I (one with 3 days' rest) is superior to the others. A further analysis was made of the effluent from contact-beds I and II when they were fed with the effluent of tank No I only. The figures showed only a slight improvement on those given above.

Putrescibility of the Effluents

A mere analysis of an effluent though telling a great deal to an expert chemist as to its quality and suitability for passing into any stream, is not the only way at our disposal of obtaining useful information concerning the other characteristics of any effluent. Several other tests can be applied which give an indication as to what will happen in nature when such a fluid is run into a river. Of these the putrescibility or incubator test is one of the most important. It is not necessary to describe in detail the carrying out of so well-known a test, but it may be well to state briefly that, a bottle is filled full of an effluent and it is placed in an incubator at 37°C for 6 days, the oxygen absorbed from acid, potassium permanganate in 3 minutes is taken before and after the period of incubation and any increase in odour, particularly the development of hydrogen sulphide, at the end of the incubation is noted. If putrefaction goes on in the incubator it is obvious that the 3 minutes oxygen figure will be greater after incubation than it was before, owing to the more rapid oxidisability of products of putrefaction. If on the other hand little or no putrefaction goes on, that is to say, if the effluent to be examined has reached the stage when most of the putrescible

matter has been broken down to simpler bodies, the difference between 3 minutes oxygen figure before and after incubation will be small. It should be, however, mentioned that there are several fallacies in the tests. Such bodies as

TABLE VI
Putrescibility Test

SAMPLES	3 MINUTES OXYGEN TEST		
	Before Incubation	After Incubation	
Contact Bed No 2 (1st series)	11	15	
Do " 2 (2nd ")	12	16	
Do " 2 (3rd ")	16	16	
Do " 2 (4th ")	11	15	
Do " 2 (5th ")	13	14	
AVERAGE	12	15	Difference 03
Contact Bed No 1 (1st series)	21	30	
Do " 1 (2nd ")	24	34	
Do " 1 (3rd ")	32	44	
Do " 1 (4th ")	22	32	
Do " 1 (5th ")	26	29	
AVERAGE	25	36	Difference 11
Tank No 1 (1st series)	43	45	
Do " 1 (2nd ")	71	89	
Do " 1 (3rd ")	65	89	
Do " 1 (4th ")	66	78	
Do " 1 (5th ")	77	80	
AVERAGE	62	78	Difference 16
Tank No 2 (1st series)	51	91	
Do " 2 (2nd ")	95	101	
Do " 2 (3rd ")	97	101	
Do " 2 (4th ")	78	109	
Do " 2 (5th ")	103	132	
AVERAGE	85	107	Difference 22
Tank No 3 (1st series)	79	122	
Do " 3 (2nd ")	107	166	
Do " 3 (3rd ")	129	134	
Do " 3 (4th ")	101	156	
Do " 3 (5th ")	116	147	
AVERAGE	106	143	Difference 37
Tank No 4 (1st series)	97	183	
Do " 4 (2nd ")	119	201	
Do " 4 (3rd ")	154	201	
Do " 4 (4th ")	123	203	
Do " 4 (5th ")	129	162	
AVERAGE	124	190	Difference 64

Crude Sewage

DATE	4 Hours' Oxygen Test	3 MINUTES OXYGEN TEST		
		Before Incubation	After Incubation	
10th Sept 1910	11.25	3.11	6.13	
11th " "	13.33	4.33	6.13	
13th " "	13.72	3.96	5.11	
22nd " "	10.97	3.45	5.93	
24th " "	9.25	2.84	4.56	
AVERAGE	11.70	3.54	5.57	Difference 2.03

nitrites and ferric salts absorb the oxygen from potassium permanganate. Consequently these bodies should be absent if a true estimate of the putrescibility of the effluent is to be arrived at.

Five separate incubator tests of crude sewage, effluents of tanks 1, 2, 3 and 4 and of two contact-beds were carried out. The figures are given in Table VI.

The crude sewage is, as one would expect, naturally very putrescible, and the difference between the 3 minutes oxygen test before and after incubation is as much as 2 parts per 100,000, no hydrogen sulphide was, however, found after incubation. There is a steady falling-off in the difference between these two sets of figures the longer the sewage remains in the tank, so that the difference in the case of tank I is quite small. It is still further reduced by the contact-beds, so that in the final result it is less than 1.03 parts per 100,000. Further work is being carried out on this test when applied to effluents derived from large installations. Figures have been obtained, which tend to show that in what would be called a very bad effluent, the oxidisable matter present, though large in amount may not necessarily be highly putrescible.

There is another obvious objection to the test, namely, that it is extremely difficult to say whether the amount of odour has increased during the incubation or not if there is any odour at all prior to incubation, when hydrogen sulphide is present in any large amount in an incubated effluent it is of course very apparent, but experience when dealing with a vegetarian sewage in the tropics has amply demonstrated the fact that hydrogen sulphide is very seldom obtained in any effluent whether good or bad. Consequently it would appear that the test is not as valuable in this country as it is under European conditions. The figures in Table VI demonstrate two things, namely, that the longer the sewage remains in the tank, the less putrescible it is, and that with suitable nitrifying arrangement an absolutely non-putrescible effluent can be obtained.

Colloid Material

In nearly all sewage or effluents colloid materials exist to a greater or less extent. In a purely domestic sewage these bodies are present in large amount, and it is looked upon as one of the actions of a septic tank to get rid of these colloids. Authorities are by no means agreed as to how this is brought about, whether simply by mechanical separation, or whether by conversion into crystalloids by the action of bacteria. From the experiments carried out in this country there can be little doubt that both actions are present in a septic tank. It will, however, be admitted that a thoroughly good effluent should contain very little or no colloid material in suspension, for if much be present

then blocking of the filters, and other troubles will invariably result

The researches of Dr Fowler and others¹ have provided a very simple and ready method of estimating the amount of colloids that are present in a given effluent. The method is as follows —

Colloid material is readily precipitated from the fluid in which it is held in suspension by either basic ferric acetate, or ferric aluminium alum, & 4 hours' oxygen absorption from potassium permanganate before and after clarification with these salts has been shown by the originators of the test to give a satisfactory estimate of the changes brought about, hence the difference between the 4 hours' oxygen figure (before and after clarification) represents the amount of oxygen absorbed by the colloidal matter present in the effluent and precipitated by the alum solution. The test made use of by Dr Fowler has been applied to the crude sewage, the effluents of four tanks and the two contact-beds. The results are given in Table VII.

working, these tanks, which it should be remembered are only bottles, would be mostly filled with this material. As a matter of fact, there is less than two inches of sludge at the bottom of each and this certainly does not present an appearance of colloid material. There is practically no doubt that by far the majority of these colloids have been changed by the action of the anaerobic organisms in the septic tanks into crystalloid bodies. Even after so short a rest in the tank as 24 hours about 70 per cent of the colloids have disappeared. Further it would be observed that longer the effluent remained in the septic tank, the more this action has gone on, and that the effluent from the tank I contains a very small amount of such bodies. The practical importance of colloids in sewage effluent is extremely great. It is not, however, proposed to deal with this subject in this work, but the point to be emphasised is to that no really good effluent should contain large quantities of material in the colloid state, and the less colloid material that an effluent

TABLE VII (a)
Clarification Test

Date	CONTACT BED II		CONTACT BED I		TANK I		TANK II		TANK III		TANK IV		CRUDE SEWAGE	
	Before clarification	After clarification	Before clarification	After clarification	Before clarification	After clarification	Before clarification	After clarification	Before clarification	After clarification	Before clarification	After clarification	Before clarification	After clarification
1st October 1909	76	63	1 28	1 14	1 77	1 39	2 28	1 52	3 04	1 64	3 16	1 77	7 34	2 15
4th „ 1909	53	58	1 57	1 29	2 73	1 44	4 17	2 59	4 17	2 59	4 39	2 73	10 36	3 02
5th „ 1909	1 39	1 32	1 55	1 47	2 32	1 55	2 87	1 86	3 02	2 01	3 72	2 09	10 16	2 17
6th „ 1909	93	80	2 00	1 87	2 40	2 13	2 53	2 13	3 07	2 25	3 47	2 40	14 25	3 33
8th „ 1909	53	43	1 05	95	2 74	1 26	3 16	1 37	4 95	1 68	5 15	1 76	14 84	1 69
Average	84	75	1 49	1 34	2 39	1 55	3 00	1 89	3 08	2 03	3 98	2 15	11 39	2 51
Colloids present	09		15		84		1 11		1 05		1 83		8 88	

These figures are the 4 Hours' Oxygen absorption from Potassium Permanganate. Contact Bed I and Contact Bed II are better than usual because tank I effluent *only* was put on to the beds.

It will be observed that about 75 per cent of the total oxidisable matter in the crude sewage is of colloidal nature. After treatment in any of the septic tanks a great deal of this has disappeared, and after the aerobic treatment in the contact-beds a still further falling off is observed, so that the amount left in the effluent from contact-bed II is only 09 parts per 100,000. Without entering into a long discussion as to what has become of these colloids, it may just briefly be stated that if these colloids are simply separated out mechanically they must have settled down at the bottom of the tanks in the form of sludge, consequently after a period of nearly three years

contains the more satisfactory it may be considered.

Absorption of Dissolved Oxygen

When an effluent is discharged into a river or stream, one of the first things which will happen is, that the oxygen dissolved in the water of the stream will be rapidly absorbed by any putrescible matter that is contained in the effluent or sewage. If large quantities of a sewage charged with easily oxidisable matter be passed into a stream it is possible so to reduce the amount of dissolved oxygen in the water as to render it impossible for fish to live in the stream. Making use of this fact we have a method of estimating the amount of dissolved oxygen which will be taken from any given water when it is

Fowler Evans and Oddie "Some Applications of the Clarification Test"—*Journal Society of Chemical Industry*, March 27, 1909.

mixed with an effluent. The test, carried out as follows, has been suggested by Dr. Fowler. A mixture of 1 in 10 of sewage with water is made and is allowed to stand for 24 and 48 hours. The quantity of oxygen dissolved in the water of which the mixture is made is estimated in the usual way by the manganous chloride method, the amount of oxygen remaining in the mixture after 24 or 48 hours is also similarly estimated. The falling off in the amount of oxygen present represents the amount absorbed by the oxidisable matter in the effluent or sewage which has been added to the water. Mixtures were made of the strengths of 1 in 10 in tap water with crude sewage, the effluents from tanks 1, 2, 3 and 4, and from contact-beds I & II. The amount of oxygen present in the mixture was estimated after 24 hours and after 48 hours standing at the room temperature (90° F), the results are given in Table VIII.

Nitrification Test

The object of the anaerobic process is to prepare the way for nitrification which can only take place in the aerobic filters. Preliminary anaerobic treatment is not essential, nitrification will go on without such preliminary, but it can be demonstrated that nitrification will commence earlier in a sewage submitted to the action in a septic tank than the same sewage not so treated. If a mixture of septic tank effluent and tap water are allowed to stand in a Winchester quart bottle half full, in contact with air, in course of time nitrates will be developed. Now if in a series of effluents mixtures are made with tap water, it is possible by a very simple test performed daily, to find out when nitrification has commenced in any given mixture. In order to get the mixtures equal it is necessary to estimate (by means of the 4 hours' oxygen test) the amount of oxidisable

TABLE VIII

DATE	Contact Bed II Diluted with tap water (1 in 10)			Contact Bed I Diluted with tap water (1 in 10)			Tank I Diluted with tap water (1 in 10)			Tank II Diluted with tap water (1 in 10)			Tank III Diluted with tap water (1 in 10)			Tank IV Diluted with tap water (1 in 10)			Crude Sewage Diluted with tap water (1 in 10)		
	Oxy left after 24 hrs	Oxy left after 48 hrs	4 hrs Oxy from K ₂ MnO ₄	Oxy left after 24 hrs	Oxy left after 48 hrs	4 hrs Oxy from K ₂ MnO ₄	Oxy left after 24 hrs	Oxy left after 48 hrs	4 hrs Oxy from K ₂ MnO ₄	Oxy left after 24 hrs	Oxy left after 48 hrs	4 hrs Oxy from K ₂ MnO ₄	Oxy left after 24 hrs	Oxy left after 48 hrs	4 hrs Oxy from K ₂ MnO ₄	Oxy left after 24 hrs	Oxy left after 48 hrs	4 hrs Oxy from K ₂ MnO ₄	Oxy left after 24 hrs	Oxy left after 48 hrs	4 hrs Oxy from K ₂ MnO ₄
7th October 1909	46	43		43	41		32	23		25	15		16	Nil		14	Nil		Nil	Nil	
8th " 1909	45	42		43	41		28	22		23	16		16	Nil		12	Nil		Nil	Nil	
10th " 1909	50	48		46	44		29	18		23	13		17	Nil		14	Nil		Nil	Nil	
11th " 1909	49	46	64	46	43	1 94	26	19	2 72	21	14	3 6	10	Nil	4 00	13	Nil	4 72	Nil	Nil	
12th " 1909	49	46	80	46	41	1 20	28	19	3 20	22	15	4 16	16	Nil	4 80	12	Nil	5 52	Nil	Nil	12 48
Average	48	45	72	45	43	1 12	28	20	2 96	23	15	3 88	16	Nil	4 40	13	Nil	5 12	Nil	Nil	12 56

The average dissolved oxygen in tap water in Calcutta is 63 parts by weight per 100,000

It will be observed that in the case of the mixture of the crude sewage no oxygen at all remained after 24 hours. In tank IV no oxygen remained after 48 hours and very little indeed after 24 hours. In the case of tank III no oxygen remained after 48 hours and not great quantity after 24 hours. Tanks I & II show that the falling off in the oxygen present in the water, though considerable in quantity, is nothing like as much as in the case of tank IV. One may, therefore, conclude that effluent from tank I is in a very much more suitable condition to be discharged into any stream than that of tank IV. This test demonstrates this fact much more clearly than the analyses given previously. On comparing the results obtained with this test in the case of the effluent from contact-beds it will be observed that, the figures show that the second contact-bed does not greatly lessen the amount of "oxygen seizing" matter in the effluent.

TABLE IX

Experiment	The effluent of Tank		I took		7 days to nitrify	
	I	II	I	II	I	II
Experiment I	"	"	"	"	"	"
	"	"	"	"	"	"
	"	"	"	"	"	"
Experiment II	"	"	"	"	"	"
	"	"	"	"	"	"
	"	"	"	"	"	"
Experiment III	"	"	"	"	"	"
	"	"	"	"	"	"
	"	"	"	"	"	"
Experiment IV	"	"	"	"	"	"
	"	"	"	"	"	"
	"	"	"	"	"	"
Experiment V	"	"	"	"	"	"
	"	"	"	"	"	"
	"	"	"	"	"	"

matter present in each, and to so arrange the mixtures of water and effluent as to have the same amount of oxidisable matter in each bottle. The bottles containing the mixtures are shaken up daily and tested for the presence of nitrites with metaphenylene diamene. Five such series of experiments were conducted with the crude sewage and the effluents of the 4 tanks. The results are given in Table IX.

It will be observed that a mixture of crude sewage and tap water (which contains roughly the same amount of oxidisable organic matter as the other mixtures of the series) took on an average 21 days to develop any nitrites at the ordinary laboratory temperature, where the effluent that had been submitted to the action of a septic tank for one day (tank IV) took 9 days, that for a day and a half (tank III) took 8, that for 2 and 3 days (tanks II & III) took about 7 and 6 respectively. Hence by this simple experiment it is demonstrated that an effluent that has been acted upon by anaerobic organisms in the septic tank is in a much more suitable condition for the action of nitrifying organisms than one that has not been so treated. Further, the results also show that the effluent of tank I which had a period of 3 days rest in the tank is more readily nitrified than that of the other three.

Amount of sludge in the tanks

It has already been pointed out that these small model tanks have been working for a period of at least three years. The amount of sludges in the bottles in inches is about the same in all of them, but there appears to be rather more in tank I.

There is about an inch in the middle of the bottle, but there appears to be a tendency for the accumulation to be deeper at the edges.

Conclusions

From the foregoing analysis and tests carried out on the seven samples (crude sewage, 4 tank effluents, and two contact-bed effluents) the following conclusions are legitimate—

1 That of the 4 tank effluents, that derived from tank I, which has a period of rest in the tank of 3 days is in every respect superior to any of the others. Further that the quality of the effluents from the 4 tanks varies with the length of rest of the sewage in the tank, so that not only is the effluent of tank I the best but that of the tank IV the worst.

2 That the action of these contact-beds both in nitrifying the ammonia and in the removal of other materials from the sewage renders the effluent thoroughly satisfactory for passing into any river or stream.

3 That with comparative simple arrangements a very great amount of purification can be obtained even in a very concentrated sewage. The effluent from contact-bed II is eminently satisfactory from a chemical point of view, in

spite of the fact that the original sewage was much stronger than what is usually met with.

NERVOUS BREAKDOWN AS OBSERVED IN BURMA

By C. O. BARRY,

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THE effect of a tropical climate on the nervous system of Europeans is generally depressing and exhausting. It is probable that this depressing effect is most felt when with heat is combined great humidity of the atmosphere, so that evaporation from the skin and consequent lessening of bodily heat is partly or totally arrested.

This depressing influence on the nervous system of European is principally manifested by sleeplessness and nervous irritability which, if left untreated, may easily develop into marked neurasthenia. Statistics show that mental diseases are more common amongst Europeans in the tropics than in temperate climates, and it is a matter of daily personal observation how common amongst Europeans in Burma are minor mental derangements as shown, by irritability, depression and sleeplessness.

In Burma the climate for the greater part of the year contains a high percentage of moisture and is almost always hot. Its enervating properties are so well known as to need no detailed description. When, therefore, in a climate such as this, continuous and hard mental work is attempted its depressing effects are intensified and not infrequently serious results arise.

With any long continued overwork the mental machine gradually wears out, but in those placed in unhealthy and enervating surroundings there may be at an earlier period signs of mental disorder rather than decay. In the cases of nervous breakdown that have come under my notice, there has been no sudden mental shock causing an overwhelming mental excitement and bringing on suddenly sleeplessness and loss of reason, but there has been a gradually increasing strain of work and with it increased mental expenditure. The brain circulation during all this time has been disturbed and the nerve centres exposed to a greater demand and a greater amount of change than they are able to bear. In temperate climates men may endure this, may work early and late and retain their faculties unharmed, but in those exposed to the enervating climate of Burma the power of resistance to such a strain is greatly lowered and one day excitement beyond recovery is likely to take place resulting in the so called nervous breakdown.

The general history of such a case is somewhat as follows. For many years the patient has worked continuously and hard, starting work early in the morning and continuing it with but short intervals to near dinner time at 8 o'clock.

Occasionally also working after dinner far into the night. For a considerable time amounting often to ten or more years, he does not feel the strain of this work but gradually his health begins to fail little by little and his work becomes a greater effort and more tiring than before, in addition he finds the mental grasp of his work is less firm and clear, that cases take longer to settle and he is conscious, he is not doing his work as well as he used to. This latter fact often stimulates him to attempt by harder work to make good his failing mental faculties, and so a vicious circle is formed in which the patient by harder work tries to overcome the growing mental exhaustion which has already arisen from over-work. Finally he collapses and further attempts to work become useless. This collapse may be in some cases quite sudden, one patient had been working extra hard in the effort to make up by increased work for failing mental power, when suddenly he collapsed, he threw down his pen and placing head on his hands said to his companion he could work no more and only after prolonged rest and change of climate was he able to attempt it. In another patient the onset was more gradual, this one had worked up high pressure for some years, he was then placed in a position of considerable responsibility, but in which the work though heavy was not more so than he had previously experienced, it was, however, new to him. This strain on a mind already weakened was too great. He quickly found his mental powers failing, sleeplessness and loss of appetite arose, and in a short time he had to be asked to be relieved of his duties. His mental condition was one of great prostration from a self-reliant, self-opinionated man, he became as dependant and wavering as a child, and his mental balance was only restored after prolonged rest.

The occurrence then of the final breakdown may be quite sudden, but is, I think, more generally gradual and often apparent to the patient's friends, though the patient himself endeavours to hide it both from himself and also from his colleagues.

The mental condition of the patients after their final breakdown is very striking, and one to excite the pity and compassion of others.

The man who was looked up to as being intellectually superior to his fellows and to whom others turned for guidance is now almost incapable of mental efforts, at least any sustained mental effort connected with the work he was engaged on, and so far from advising others, he now turns to them for support and guidance. The loss of self-reliability is a most marked feature and one to remember in your treatment of cases of this nature. This patient, I feel sure, wishes to have his mind made up for him, and you must show no doubt in directing him as to his movements and actions. At times great apathy is seen and the patient appears to find everything to much trouble to worry about,

even though the matters affect him with great personal interest. In one case a patient had taken his passage to England and made all arrangements to start with his family for that country, all he had to do was to appear before a Medical Board to be officially recommended leave. The Board was held at 8-30 A.M., but he did not arrive till 11 o'clock, when the Board had dispersed. He was told that it was unlikely a Board could be got together in time to pass him before the steamer sailed, in which case he would have to wait a fortnight longer. To one's surprise even though his luggage was on board the steamer and his family packed up and ready to start, he did not seem to care in the least. He simply remarked he was sorry not to have seen the Board, and when asked what he intended to do said "nothing." I need scarcely add, arrangements were made to get him on board the steamer, but the complete indifference and apathy to a condition which would excite most men greatly was very striking.

This condition then of nervous breakdown is liable to occur amongst hard-worked men in an enervating climate, such as that of Burma. Whether the work of Government officials and others in Burma is harder than that in India and elsewhere I am unable to say. A previous Lieutenant-Governor when consulting me on the question of the frequency of nervous breakdown amongst Government officials in Burma, stated in his opinion, the work in this latter province was not harder than elsewhere, and he had had a full experience of the work of the Bengal Secretariat. Be this as it may. There is no doubt that mental breakdown is comparatively frequent in Burma, and it seems probable the humid and enervating climate of this province is an important factor in producing this result.

As regards the treatment of these cases, owing to the length of time, excessive stimulation has existed and the exhaustion the whole machinery has undergone the symptoms of mental derangement do not subside rapidly.

The mental machine has been worked at high pressure, without adequate rest or repairs and the process of restoring it once more to working condition must of necessity be a long one, more especially since the patients are not as a rule youthful.

The essentials of the treatment of these cases may be shortly summed as Rest, Sleep and Food.

The rest must be complete and long. Nothing short of long leave to Europe will, I believe, be in any way successful. The patient must be removed from his work and also from the surroundings of his work so that not only may he be prevented from doing any work, but even from thinking about it. The climate he goes to should be of a stimulating and bracing nature and his surroundings such as are pleasing to the senses. Though he should be prohibited

in indulging in any mental work of the nature he was doing when the breakdown occurred, it is well that his mind should be occupied in other directions and he should be warned against living an absolutely idle life. He should live in the open air as much as possible, and with this view advised to take part largely in out-door games so that he may return home at night healthily tired, and sound sleep may be obtained. Some patients have found benefit in pursuing some scientific research work in which they have been previously interested, and as long as this work is of a nature quite different to that which produced the breakdown and is not excessively indulged in, it may be beneficial. The idea of the treatment is to prevent the patient brooding over his mental condition or, if possible, thinking about it at all.

Sleep—The brain of every one requires rest which it takes in sleep, only in complete sleep does it thoroughly recruit itself. In sleep all work ceases except the processes of organic life and these are reduced to their lowest point, in consequence there is no expenditure, only renewal of nerve power, according to the previous exhaustion will be the demand and necessity of sleep. Unfortunately one of the greatest difficulties we have to treat in cases of nervous breakdown is sleeplessness. Harassing thoughts about their work pursue the patients far into the night and drives sleep away. Something may be accomplished by the use of drugs but not by drugs only, rest from their mental work and change of surroundings must be also provided or the treatment by drugs may become worse than useless.

An immense variety of drugs have been advertised for the cure of sleeplessness, but in selecting any one great care must be taken that no morphia enters into its composition. In all cases of nervous breakdown, morphia must be rigidly excluded, for the possibility of the patient becoming a morphia-maniac is a real one and should be constantly kept in mind. In the cases I have had to deal with I have found sulphonal and trional of use and if used with discretion harmless. At the onset when the breakdown has just occurred these drugs may have to be given in large doses, but in all cases a definite prescription should be given and the patient should not be allowed to buy a bottle of tablets and dose himself. If this course is allowed disastrous results may occur. Later on, when the patient has got over the first shock, hypnotic drugs should, as far as possible, be withheld, there is rarely any necessity for their use and the patient must be carefully guarded from becoming addicted to their use and dependent on them. Healthy exercise in the open air will, as a rule, induce refreshing sleep.

Food—Experience has shown that an adequate supply of food is required for the wants of the nervous system and that want of the

results in a diminution of nerve energy and often in nervous disease, a plentiful supply of food is of all things the most efficacious in restoring exhausted nervous power and in removing nervous disorder. Not merely for the nourishment of the brain is the food required, it is demanded not only that the brain may live, but that it may discharge its function in a normal and healthy manner. It is, therefore, of supreme importance in all cases of nervous breakdown to see that the patient eats and eats well, if anything, the tendency should be to make the patient eat more than enough rather than less than enough. With this view, the food provided must be plain, easily digestible and of a nourishing kind though care must be taken not to make it of a monotonous nature. If, as often happens, the patient's digestive power is weak the desired results may be obtained by giving some of partially digested foods such as Mellin's, Allenbury's or other foods of this nature with milk at stated intervals between meals. In all cases, however, care must be taken to ascertain how much the patient really is taking, and if necessary to insist on an adequate quantity of food being consumed daily. Should the patient's appetite be bad some of the infusions of vegetable bitters may be given to increase the appetite.

Other questions of treatment may have to be considered, should insanity follow on a nervous breakdown it will probably take the form of melancholia or monomania with suspicion and ill-temper. It must be remembered that every patient with melancholia must be looked upon as suicidal and must not be left alone for a minute where he can do himself harm. Though I have seen no case of nervous breakdown that has advanced as far as melancholia the border line between the two conditions is not distinct and the possibility that a patient who is suffering from nervous breakdown may commit suicide must be kept ever in mind. The responsibility then of sending a patient on a long sea voyage is a great one, it is frequently, however, an absolute necessity. It is one's duty therefore to warn his relations and friends of this tendency to suicide and impress on them the necessity of careful and constant supervision. It will be necessary to provide the companionship of some one the patient's equal in social position and who can be trusted to without obtruding himself carefully watch and if necessary restrain the patient's actions. With these precautions a change of climate such as necessitates a long sea voyage may be advised, but it must be recognised as a time, of special care and watchfulness. Personally I have more than once been much relieved on hearing of the safe arrival of patients at their homes in England.

As long then as there are symptoms of marked depression of spirits the possibility of the patient committing suicide must be remembered.

and his relations and friends must be warned of this possibility without frightening them too much. Irritability of temper and suspicion are other symptoms which, though unpleasant enough, are not of such serious importance. I am bound to say in my experience the patients have been more ready to vent their ill-temper on their relations and friends than on their medical man. Still occasions do arise when the doctor may have his professional feelings much hurt. It is needless to say he must view these outbursts philosophically as one of the many unpleasantness that a physician is heir to, and as long as the patient's friends are satisfied and prepared to carry on the treatment advised, he need have no scruples in continuing his medical attendance.

As regards the friends and relatives patience must be asked for, and they can be assured, that as the acuteness of the nervous breakdown abates, the temper of the patient will improve, in all probability regain its normal condition.

The question arises how are these nervous breakdowns to be avoided. In spite of the somewhat prevalent idea in England that people in India have an easy time as far as mental work is concerned, there is no doubt the majority of us work a great deal harder out here than in England. Not only are the working hours in the middle of the day much the same as those in England, but in the East the early hours of the morning are also devoted to work and frequently work late into the evening has also to be done.

By nature of their position in an alien country the class of work to be done by Europeans generally entails much responsibility and much careful thinking over. The working hours then of those in the East are not only longer than in England but the character of the work itself is more harassing and entails greater mental effort. To deal with this state of affairs, it is necessary that certain hours for rest and relaxation of the mind should be definitely set apart and not encroached on save under exceptional circumstances.

With the idea of keeping one's physical health in as good a condition as possible a portion of this period of relaxation should be largely devoted to exercise and playing some out-door game. The people who I have seen best able to deal with excessive amounts of work are those who have made a rule of playing some out-door game regularly daily if possible. As regards the particular form of exercise or game, that must be left to strength and feelings of the individual, but it should be sufficiently engrossing to take the person's mind completely off his work and sufficiently arduous to make him feel pleasantly tired. The point to keep in mind is that arrangements should be made that the games can be regularly indulged in. That such arrangements are possible there

is little doubt. Facilities for playing games are so great in the East that the short time required to play some out-door game can as a rule be spared even by the hardest worked person. It may very likely be necessary to finish some work after the game is over, but this is vastly better than staying in office, till the hours of day-light have gone by and then spending one's hours of relaxation at the club or shut up in one's house. Again, whenever possible, Sunday should be observed as a holiday, and every effort should be made by those in authority to make it possible. Apart from any Biblical teaching experience has taught us man requires one day's rest in seven. Under the French revolution an effort was made to bring into use a period of nine days' work with one day's holiday on the tenth day. This project collapsed for the very reason that it was unsuitable for the requirements of man. Some people's work, my own for instance, necessitates a certain amount of Sunday work, but even in these cases it should be limited as far as possible, and on no account should extra arduous work be put off for special consideration on Sunday as is frequently the habit. Sunday should be a real day of rest from the work that has engrossed one during the week.

One word of warning must be given, however, as regards the quality and quantity of the exercise taken. Mental fatigue will produce muscular weakness and muscular fatigue will produce cerebral anæmia and loss of mental capacity. Hard mental exercise must not be looked on as a relief from muscular weakness or hard muscular exercise as a rest to the brain. This, however, refers to exhausting work and slighter efforts of the brain or muscles will, as a rule, be very beneficial. Each person must, therefore, choose both the form and amount of his exercise, making it such as will produce of a feeling of being pleasantly tired, and bearing in mind that an excessive bout of exercise on a Sunday, such as a hard day's snipe shooting, will not render him more fitted to begin the week's work on the following Monday.

With regard to evening entertainments as a rule a hard-worked man looks on them as by no means an unmixed blessing and often refuses most of the invitations received. Still social exigencies require that a certain number should be accepted and no doubt an really enjoyable evening does one good. I think, however, the number attended should be strictly limited, say, to not more than two a week, and even then only those where it is possible to get back to bed by 12 o'clock. Hard work, whether mental or physical, necessitates sufficient sleep, and this can only be obtained by going to rest at a comparatively early hour. If the benefits promised by the old proverb of early to bed, etc., are to be realised one should retire to rest not much later than ten on most nights of the week,

since in this country one must perforce arise early

Finally a few remarks may be added as regards the consumption of alcohol. There is no doubt that it is an unnecessary article of diet if, however, used within strict and reasonable limits it cannot be said to be harmful. These limits are small and should not exceed two ounces of whisky or brandy in twenty-four hours. Two modifying factors also must be kept in mind. The first is that of idiosyncrasy, some people may be injuriously affected by this amount and some may be able to take more without ill-effects, but the number that should not take as much as two ounces of whisky daily is much greater than the number who can take more, in fact it is doubtful, if any, but the rarest exceptions can take more than the above-mentioned amount without some injury to their constitution. The other factor is in what form the alcohol is taken. It should always be well diluted, best with meals and the amount should be divided evenly over some considerable period and not all taken at one time.

It is, however, in conditions just short of health, such as arise in overwork and fatigue that alcohol may have a markedly beneficial effect. This good effect can be traced almost entirely to its favourable effect on digestion.

In treating nervous breakdown, therefore, I believe alcohol is of benefit if given strictly in the quantities above mentioned and at meals only.

I am not in any way advocating the use of alcohol, I am fully of opinion that the person who is a "total abstainer" has in most cases a more thoroughly sound constitution than that of a person who drinks alcohol, but if it is taken in the limits alluded to before, it probably does little harm, and I would not advise cutting off a person who is hard-worked from the pleasure and benefit he may derive from a whisky and soda.

The effects of alcohol in excess need not be dwelt upon, but it must be kept in mind that the ill-effects are likely to be more rapid and more lasting if at the time the consumer is mentally worried.

Finally then the enervating climate of Burma makes the work required of those living in this country especially arduous. To enable one to do this work without serious harm, it is necessary to live specially carefully so as to keep one's constitution in the best possible condition. In addition every effort should be made by those in authority that hours of relaxation may be enjoyed during daylight that the shorter periods of leave are freely granted and the longer ones as regularly and punctually as it is possible.

A Mirror of Hospital Practice

LT COLONEL SMITH'S OPERATIONS IN BOMBAY

By P. P. KILKELLY, M.B. (Dub.),

MAJOR, I.M.S.,

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On the 27th February 1909, at my request, Major (now Lt-Colonel) Henry Smith, Civil Surgeon, Jullunder, performed 23 cataract extractions at the S. C. J. Ophthalmic Hospital, Bombay.

The results are given in full in tabulated form. They analyse as follows—

No. of cases	Vision
1	6/15
2	6/20
7	6/30
3	6/40
4	6/60
5	Fingers from 10 to 18 ft
1	Moving bodies

Accidents during operations

Capsule ruptured	5
Vitreous escape	2 = 8.69

4 Complications

Incarceration of Iris in lips of wound	5
Capsule tags in wound	4
Vitreous opacities	9
Iritis	7

This subject of extraction of cataract in capsule has been much discussed and some of the correspondence has been almost acrimonious. It is, however, impossible to disassociate Lt.-Colonel Smith's name from the operation, he has performed it so often and advocated its superiority so strongly, that criticism must of necessity refer to his particular methods of operating and his results.

The results of these 23 operations performed by Lt-Colonel Smith himself confirms me in the opinion I expressed at the Medical Congress last year when I invited Lt-Colonel Smith to operate at the C. J. Ophthalmic Hospital.

I then stated that I had performed some 600 extractions in capsule, but that I had given up the operation as a routine procedure, being convinced that the best interests of the patient were not considered if it be done except in very exceptional cases.

It is clearly shown by these cases that accidents occur and a high percentage of bad results follows intracapsular extractions even when the operation is performed by Lt-Colonel Smith himself, and for my part, I now feel that the average patient is exposed to an altogether unnecessary danger by the operation.

Lt-Colonel Smith's method of operating is well described by Major Budwood in the *Indian Medical Gazette* of January 1910, I would only add the following remarks —

Method of reposing Iris

Major Budwood mentions that the iris is adjusted after extraction of lens with a pair of iris forceps or a strabismus hook. I think this accounts for the incarcerated iris. In the 23 cases under notice, Lt-Colonel Smith inserted the point of a strabismus hook at the edges of the wound and was satisfied that he had replaced the iris.

During the extraction of the lens in capsule, the iris is often forced into the corners of the wound and to my mind, it is impossible to conceive how a round and comparatively large instrument like a strabismus hook could reach the extreme angles of the wound. Further, as the eye is in nearly every instance strongly rotated upwards, it is difficult for the operator to see what the point of the strabismus hook is doing. To some of us, onlookers, it appeared to be merely stirring up the vitreous.

Pressure applied during extraction

In some of the cases at least, it seemed that the pressure necessary, was excessive. Many lenses shelled out with the utmost ease, in others it was only the undoubted determination and persistence of the operator that brought about the desired result or caused a ruptured capsule or escape of vitreous. It seems to me that this excessive pressure is liable to cause injury to the deeper structures and may be responsible for vitreous opacities.

Iritis

This complication appeared in a high percentage of the cases, even cases when the lens

was extracted in capsule. It is, I believe, claimed that iritis is extremely rare.

Report of cases

We have had reports of these operations from operators all over India, but most of these are merely enumerations of thousands or tens of thousands of extractions performed, and statements claiming percentage of successes varying from 90 per cent to 99.5 per cent.

Statistics, such as these, are useless, although I fully recognise that it is almost impossible to obtain reliable figures. For example, Lt-Colonel Smith, Civil Surgeon, Jullunder, fulfils all the duties of Civil Surgeon of a large district. I believe he is also Superintendent of the Jail. He has a large general hospital and private practice, and in addition to all this, he performs in the busy season some 50 cataract extractions a day. He told us that he performs the cataract extractions at a rate of from 12 to 15 per hour nearly 4 hours work. Say 3 hours more to hospital work, seeing his patients and performing other operations such as removal of the superior maxilla, etc. One hour for the jail. Two hours for his private patients, official and otherwise. This gives us a total of 10 hours' work.

The 23 cases under notice were examined by myself, Doctors Frederick Bentley and N. D. Pontius of Seattle, Washington, U. S. A., both experienced Ophthalmic Surgeons.

We found that from 10 to 15 minutes was required for the examination of each case, i.e., 50 cases would take at least 9 hours. It is obvious, therefore, that it is a physical impossibility for a busy man to examine the patients himself, and he has to trust mainly to subordinates in the matter of his notes and statistics when they refer to thousands of cases.

Cataract Extraction in Capsule by Lt-Colonel Smith on 27th February 1909

No	Name	Vision before operation	Notes before operation	Notes during operation	Date of discharge	No of days in Hosptl	Retinoscopy	Vision	REMARKS
1	S S	$\frac{1}{6}$	Normal		13 3 '09	15	$\begin{array}{r} +14 \\ \hline +12 \end{array}$	$\frac{1}{17}$	Definite vitreous opacities
2	S S	Moving bodies	Do	Somewhat	13 3 '09	15	$\begin{array}{r} +11 \\ \hline +10 \end{array}$	$\frac{1}{16}$	Striped keratitis
3	M R	Do	Gt Lids	Pt squeezed Vit escape Capsule removed with forceps	15 3 '09	17		Moving bodies	Wound completely healed. Eye infected. Post synechia. Pupil occluded with exudation. Iritis.
4	M R	Do	Do	Lens somewhat	15 3 '09	17	$\begin{array}{r} +16 \\ \hline +16 \end{array}$	9 feet	Faint pannus upper part of cornea due to old Gt Lids
5	M H	3 feet	Normal	Capsule ruptured removed with forceps	16 3 '09	18	$\begin{array}{r} +14 \\ \hline +10 \end{array}$	$\frac{1}{16}$	Capsule tag attached to wound above
6	G F	1½ foot	Do	Small escape of vitreous	17 3 '09	19	$\begin{array}{r} +11 \\ \hline +10 \end{array}$	$\frac{1}{16}$	Fine vitreous opacities

Cataract Extraction in Capsule by Lt-Colonel Smith on 27th February 1909—(contd)

No	Name	Vision before operation	Notes before operation	Notes during operation	Date of discharge	No of days in Hospital	Retinoscopy	Vision	REMARKS
7	A F	Do	Normal		17 3 '09	19	+12 +8	5/6	No complications
8	A K	Moving bodies	Do		18 3 '09	20	+13 +7	5/6	No complications
9	A K	18 feet	Do	Immature	18 3 '09	20	+14 +12	5/6	No complications
10	L P	1 1/2 foot	Do		18 3 '09	20	+13 +9	5/6	Definite large vit opacities Evidence of recent iritis
11	L P	1 1/2 foot	Do	..	18 3 '09	20	+14 +10	11 feet	Vitreous opacities Evid ence of recent iritis
12	H P	5/6	Pupil semi dilated		18 3 '09	20	+13 +13	5/6	Iris incarcerated Fine vitreous opacities No clear view of fundus
13	A Y	Moving bodies	Normal	Stupid patient squeezed the eye but no escape of vitreous	18 3 '09	20	+12 +12	5/6	No complications
14	A Y	Do	Do		18 3 '09	20	+14 +12	5/6	No complications
15	F D	Do	Do	Lens some	19 3 '09	21	+12 +10	13 feet	No complications
16	F D	Do	Do	Lens saulted	19 3 '09	21	+12 +11	15 "	Distinct vitreous opacities Iris incarcerated Pupil drawn up
17	M D F	Do	Do		22 3 '09	24	+12 +10	5/6 "	No complications
18	Do	Do	Do		22 3 '09	24	+12 +10	5/6 "	Wound not closed much pericorneal injection Cauterized 11 days after operation A c full but marked vitreous opacities on discharge Iritis
19	L D	Do	Do	Capsule burst and removed with dissecting forceps only	25 3 '09	27	+14 +2	5/6	Tags of capsule in wound Iris incarcerated Vitreous opacities Eye inflamed Iritis
20	J P	5/6	Immature		25 3 '09	27	+14 +10	5/6	No complications.
21	J P	Moving bodies	Pupil semi dilated	Capsule ruptured Dissecting forceps fail to remove the whole capsule Iris for cept also used but some capsule left	25 3 '09	27		5/6	Iris incarcerated, and pro lapsed Prolapse cut off Tag of capsule in wound
22	C A	Do.	Normal		25 3 '09	27		5/6	Much pericorneal infection Iritis No fundus re flex Marked post syne chia and pupillary mem brane Needled on 24th
23	M K	3 feet	Do	Capsule ruptured partially removed with dissecting forceps attempts also made with iris forceps	25 3 '09	27		18 feet	Iris incarcerated Capsule in wound Iritis Vitreous opacities

Indian Medical Gazette.

MAY

THE MALARIA LABORATORY, AMRITSAR

"We may therefore assume that the number of deaths from malaria in India are ordinarily one million [pa], but that in an exceptional season [1908] they have risen to two millions"

Then as to prevalence of sickness from malaria

"we have to admit 100 million cases of fever for 1908, which were not fatal. It is appalling to think of the suffering and economical loss that such conditions imply, not only direct and immediate loss by the death and sickness of adults, but potential loss in the case of children"

Such were the weighty and sympathetic words of Lord Minto at the opening of the Imperial Malaria Conference last October, and he pointed out at the same time the magnitude of the question with which the Government of India was called upon to deal.

The machinery which His Excellency has inaugurated to meet the case is one of no less magnitude in the medical history of this country, for the programme of Malarial Enquiry which has come about, provides for a systematic investigation on such a scale as has never been known in India. It is a scheme which is certain to produce good results, and to do credit to the "firm belief" in eventual success, which Lord Minto was so complimentary as to suggest.

It is unnecessary to reproduce here the Resolutions and Recommendations of the Conference. They have been published. Practically they are an elaboration of the scheme outlined by Colonel Leslie, the Sanitary Commissioner with the Government of India, and they form the basis of a letter from the Government of India to Provincial Governments, recommending the establishing of a provincial organization for the detailed investigation of the epidemiology and endemology of malaria. The plan is as follows—First, there is a Central Scientific Committee in Simla, consisting of Colonel Leslie, Colonel Semple, Captain Christophers, and Major James. They will map out general lines of investigation. They will also themselves undertake (A) research at the Central Research Institute, including collections of anopheles, biology of anopheles, and (B) work in the field and laboratory (including enquiries why certain tracts

are malaria free, and others are malaria fast), transmission of malaria, study of gametes—the infective stage of the parasite quinine, etc., etc.

Secondly, each province will have an organization (working in consultation with No 1) for the detailed investigation of the epidemiology and endemology of malaria. This organization will consist chiefly of the Inspector-General of Civil Hospitals, the Sanitary Commissioner, and a Special Malarialogist, the last being responsible for actual malarial work.

Thirdly, every autumn, all provincial malarialogists will meet the Central Scientific Committee in Simla, and notes and views will be exchanged, and suggestions for further work offered.

The provincial malarialogists will collect information on the following points—The exact mapping out of the disease as shown by sickness and mortality, species of anophelines concerned—life-history, food, migrations, power of flight, percentage infected, the relation of endemic to epidemic malaria, sex and age distribution of cases and of deaths from epidemic malaria, whether the species of mosquito concerned in the spread of epidemic are the same as those concerned in the spread of endemic malaria, proportion of mosquitoes infected, etc., etc.

Next, in order to ensure systematic work on definite lines of investigation, each province was asked to send its malarialogists (with one assistant) to Amritsar, where Captain Christophers, with his very special knowledge and experience of field work in connection with malaria, held a class, and demonstrated fully and practically everything that was necessary for a complete malarial survey. This class met on March 15th, and lasted six weeks. It included the following—

Bengal—Captain W. C. Ross, M.B., Deputy Sanitary Commissioner, Assistant-Surgeon M. C. Ghosh.

Eastern Bengal and Assam.—Captain A. W. C. Young, M.B., Deputy Sanitary Commissioner, Assistant-Surgeon C. K. Nandy.

Maharashtra—Captain T. S. Ross, Deputy Sanitary Commissioner, Assistant-Surgeon, R. R. Williams.

Bombay—Major F. H. G. Hutchinson, M.B., Deputy Sanitary Commissioner, Civil Medical Assistant J. B. Desai.

United Provinces—Captain J. D. Graham, M.B., Civil Surgeon, Bulandshahr, Assistant-Surgeon Harparshad.

Central Provinces—Major W H Kennick, Civil Surgeon, Khandwa, Assistant-Surgeon G R Goveidhan

Punjab—Lieutenant-Colonel J R Adie, M B, Civil Surgeon, Ferozepore, Hospital Assistant Abdul Ghaffar

Burma—Civil Medical Assistant Mounng Tun Hlaing

Major C L Periy, Deputy Sanitary Commissioner, Punjab, also attended the class

Amritsar is an ideal spot for such a class. It suffered dreadfully in the epidemic of 1908, and its peculiarities of subsoil water, drainage, mosquito prevalence, endemic malaria, etc., can be studied with the utmost ease. Here the Laboratory is situated in a convenient bungalow on the Mall, supplied (in the usual Amritsar way) with innumerable doors. Each door facing the outside is occupied by a work table, with the usual paraphernalia of slides, cover glasses, dissecting instruments, stains, etc., littered round a microscope. The verandahs are filled with breeding-out nets, the shelves inside with malarial literature, and the godowns with *Proteosoma* sparrows.

All kinds of mosquitoes are gathered and dissected, then genera and species are studied and diagnosed from eggs, from larvæ, and from adults, then life-history is followed out, then mid guts and salivary glands are exposed, and they are utilised to repeat Ross's famous *proteosoma* experiments to demonstrate zygotes and sporozoites.

Then a complete study of malarial blood is made from films taken in the city and from museum specimens. Much attention is given to distinguishing species of parasites, and to diagnosing gametes. Excursions are made into neighbouring villages for hunting larvæ and adult mosquitoes and portions of the city are similarly visited.

Lastly, strict malarial surveys are made, in which chosen areas are systematically examined as to prevalence of malaria, of mosquitoes, of larvæ, of large spleen, etc., etc.

Thus, it will be seen there is no branch of the subject which has not been explained and demonstrated in Amritsar by the able head of the Laboratory. It only remains for the Provincial Malarialogist to go forth into his province and carry on this work in every district, tehsil, and thana. This will take time, and this is why such an organization should be permanent, just as, in Italy, the Society for the

Study of Malaria is a permanent organization, always working, always adding something useful to malarial literature, always suggesting something good for the advancement of prophylaxis and treatment. Such a permanent Society is certainly needed in India to keep up the good work begun and to supply a continuous stream of trained workers.

Current Topics

PHLEBOTOMUS FEVER (SANDFLY FEVER)

Yet another step forward appears to have been made in the task of differentiating the still unknown "pyrexias of uncertain origin." In the *R A M C Journal* (March 1910) Lt-Col C Butt, R A M C, has an excellent article on what he calls "Phlebotomus fever in Malta and Crete." The symptoms are not in themselves remarkable fever 3 or 4 days, frontal headache, flushed face, heavy half open eyes, pains in back and limbs, white-coated tongue and constipation. The disease in Crete among the soldiers obtained the slang name of "pink eye."

Apparently great use is made in army returns of the *Nomenclature* heading "pyrexias of uncertain origin," as in 1909 out of 269 cases of fever only 1 was Malta fever (happily banished), 12 were enteric and 256 are returned as "of uncertain origin," and the vast majority of these fevers were of short duration, lasting 2 to 5 days only, and 65 per cent of such cases were in men who had lived less than a year in Malta.

Serum agglutination examinations made in 47 instances excluded the well-known continued fevers.

The history is that of being bitten by "sandflies." The common sandfly of Malta and Crete is *P. papatasi*, and is common from April throughout the summer. These phlebotomi have been caught in numbers gorged with the soldiers' blood, they have been kept in cages, and finally, the pluck and public spirit of the gunners of the 99th Co R G Artillery has enabled a series of voluntary experiments to be made, with infected phlebotomi, showing that this insect could and did convey the disease. Lt H G Gibson, R A M C, and Lt H S Ranken, R A M C, also volunteered to be experimented upon.

We refer our readers to the article from which we quote for details of the experiments in Malta and in London. Lt-Col Butt sums up his able article by taking it as "proved" (1) that the blood of a person suffering from phlebotomus fever is virulent during the first day; (2) that the virus can pass through a Pasteur-

Chamberland Candle "F", (3) that the *phlebotomus papatasi* can convey the infection, (4) that the incubation period varies for 3 days to 7 days, and that (5) the phlebotomus is infective 7 to 10 days after sucking virulent blood and that (6) the virus retains its activity for a week *in vitro*.

The disease is not unlike, but is milder than, the *Pappataciefieber* described in Herzegovina and on the Dalmatian coast by R. Doerr.

Its likeness to L. Rogers' 7-day fever or the 3-day fever of Chittal is obvious and calls for investigation.

IDENTIFICATION OF HUMAN BLOOD STAINS

OUR readers are aware that the Government of India possesses in Lt-Colonel W. D. Sutherland, I.M.S., an expert in the extremely difficult subject of the differentiation of human from other mammalian blood-stains, a subject of perennial interest and importance in criminal cases. It is also known that Lt-Colonel Sutherland has been on special duty in the Calcutta Medical College and has shown that the precipitin reaction is of the greatest value in such differentiation. The Government of India has under consideration the question of arranging for this by special work to be done in India. We, therefore, read with interest a note in the *Lancet* (Feb. 26, 1910) on this subject, some of which we quote, though it shows the usual ignorance of the work done in India on this subject.

"But of late years, as is now generally known, the perfection of the complement reaction by the biological chemists of Germany has placed a new and delicate means of investigating this problem in the hands of the medico-legal expert, and at a meeting of the Section of State Medicine of the Royal Academy of Medicine in Ireland on Jan. 28th, the President, Professor E. J. McWeeney, delivered a most interesting address upon the Precipitin Reaction in Medico-legal Work, treating chiefly of this subject. He first reminded his audience that up to the year 1900 the difficulties in the way of certainly identifying the origin of blood stains were practically insuperable. The differences in size between the red corpuscles of man and those of the domestic animals were insufficient to admit of certain microscopic distinction unless the blood were fresh and unaltered, which is practically never the case. It was from the bacteriological side, owing to the labours of Uhlenhuth, Wassermann, and Schutze in Germany, and of Nuttall in this country, that this unsatisfactory state of things was changed, and the biological method elaborated. Professor McWeeney then referred to his own experience of the method which he had been applying in medico-legal cases for the Crown in Ireland since 1902. Quite recently he had had to inquire into a case in which there was one spot of blood, and one only, on the clothes of a man accused of committing a murder. It was on his cap, and was no bigger than a threepenny piece. By the aid of highly potent anti-sera and the capillary tube method he was enabled to satisfy himself that the blood was not of human, but of equine, origin, and reported to that effect. On subsequent inquiry it was found that the accused man had been in the employment of a large horse dealer, and had frequently to perform, or assist at, operations on horses. In another case where a man accused of a brutal murder had tried to account for blood stains on his knife by saying that he had been killing a goat, Professor McWeeney had been able to show that the

stains in question were composed of human and not of goat's blood. The man had since been executed. Professor McWeeney then entered upon a minute description of the several steps of the method—the obtaining of the antigen, the preparation of the rabbit employed for the production of the specific anti-serum, the preparation of the stain extract, the titration of the precipitating power of the anti-serum, and the determination of its specificity. He referred to the delicacy of the method, which could be made to reveal as little as 1/20,000th gramme of albumin, and to the sources of error, the most important being the overlapping of the reaction on either sera or stain extracts from biologically allied, and sometimes from widely removed, species as described by Nuttall. Professor McWeeney showed how these errors were to be avoided by using the antigen diluted to somewhere near the titre of the anti-serum. The other biological method of diluting the origin of albuminous matter—that by complement fixation—was then briefly referred to, and Professor McWeeney concluded by pointing out the wide possibilities of the precipitin method and the uses to which it might be applied in hygienic work—such, for example, as the detection of horse and cat flesh in sausages. The address was followed by a demonstration of the mode of determining the precipitating power and specificity of a sample of anti-human serum, and the recognition by means of anti-ox serum of the bovine origin of a blood stain that had been over two years dried on boot leather.

TUBERCULOSIS IN THE INDIAN ARMY

THE subject of tuberculosis as a disease affecting various classes of natives of India has within the past year or so been freely discussed in these columns.

There was a time, some 20 years ago, when there was a general impression that this the so-called "White Man's plague" was very rare in India, but this comfortable belief has long been exploded, and it is well known that in the Civil population, in the Army and among the prisoners in India tubercle of the lungs is a very common and very fatal disease, and that India enjoys little or no immunity against the ravages of the bacillus tuberculosis.

In that valuable publication, the *British Journal of Tuberculosis* (January), we find several valuable papers on tuberculosis as it affects the public services of the Army and Navy.

It is satisfactory to learn from these papers that in the British Army now-a-days tubercle is less frequent and in the Royal Navy it is certainly not more prevalent than in the Civil population of the same age.

We propose, however, here to deal with the subject as it affects the Indian Army, and we shall quote from the admirable paper in the journal referred to, by Lt-Col C. A. Johnston, M.B., D.P.H., I.M.S. Lt-Col Johnston shows clearly that tuberculosis is a common disease of the sepoys of our Native Army in India. It is remarkable that while the figures quoted for the years 1885 to 1905 show a diminished admission rate for British soldiers, the contrary is the case for Native troops. We agree with Lt-Col Johnston in attributing this difference to several causes, one

being that the British soldier in India lives in large airy and well-ventilated barracks and also to a considerable extent realises the value of fresh air, whereas the Native soldier, like his brethren in Civil life, does not realise or value fresh air and probably sleeps with his head covered up with his blanket. Moreover, the quarters provided for the Native Army, being built after the pattern of the native houses of the community at large, are far from being satisfactory from the point of view of ventilation and fresh air, and in many cases where openings have been provided, they will be found stuffed up and rendered useless. Doubtless too the high admission rate among sepoys (37 to 43 per mille) is partly due to increased care in, and to improved methods of diagnosis, and we may add, to the disappearance of the view of the non-liability of Indians to this disease. Another factor is the considerable proneness of the Gurkhas to this disease and the considerable increase in the number of Gurkha regiments of recent years.

The following table compiled by Lt-Col Johnston is of interest —

The races most subject to pulmonary tuberculosis can be arranged in the following order —

Gurkhas	73	Other caste men	1.92
Rajputana Rajputs	66	Sikhs	1.78
Dogras	59	Punjabi	Mussal-
Jats	37	mans	.17
Hindustani Mussal		Brahmins	.16
mans	34	Maharattas	.15
Hindustani Rajputs	275	Madrasais	.12

Lt-Col Johnston's whole paper is well worthy of perusal

THE CAMPAIGN AGAINST HOOKWORM DISEASE

THE following extract is of great interest. It is well known that the allied species of hookworm the *ankylostoma duodenale* is extremely common in India, 70 to 90 per cent of the inhabitants of many districts in Bengal and Madras being affected, and the American variety, *Nicator Americanus*, is also found in India.

"Upon the discovery of the American hookworm, *Nicator Americanus*, many physicians, especially in the South, discredited the great frequency of its occurrence and attributed little importance to it. Since 1902, however, many young physicians have entered general practice in various parts of the South, prepared to do microscopic work and on the lookout for uncinariasis. As a result, literally thousands of cases of hookworm disease have been diagnosed and treated. At the Annual Meeting of the Georgia Medical Society in 1908, one physician—a general practitioner—reported having treated some 450 cases, while, in the discussion following this paper, another general practitioner stated that he had treated over 500 cases. Chamberlain (*Archiv Int Med*, V 4 (1), pp 8-20)

reports that 60 out of 100 southern men serving their first enlistment in the U S Army were found to be infected with hookworms when examined at Jackson Barracks, La. Among new recruits from the South as high as 85 per cent were at times found to be infected. The writer found (1908-1909) that 22.2 per cent of 500 miscellaneous patients admitted to the Georgia State Sanitarium for the first time were infected with hookworms and that 51.9 per cent of white males between 15 and 30 years of age harboured the parasites.

From the foregoing it is very evident that hookworm disease is by no means confined to the poor whites of the South. However, it is doubtless true that the poor whites are more frequently and more heavily infected than others for the reasons that they inhabit the sandy and clay regions—which are favourable to the propagation of the hookworm—and that their habits of life are likewise favourable to hookworm infection. So far as I am aware, no definite statistics, showing the percentage of unselected cases infected with the hookworm among the poor whites have been compiled, but sufficient has been done by Dr Stiles among the cotton mill-hands of the South—who are largely drawn from the poor white class—to show that a high rate of infection exists, especially among children and young adults.

It is not definitely known precisely how the campaign will be conducted. Two chief things are to be undertaken. Cases are to be diagnosed and treated, and the public is to be educated along the lines of general hygiene. To accomplish the first, free clinics will doubtless be established at various places, while to accomplish the second, free literature bearing upon the causation and symptoms of uncinariasis, as well as upon the life-history of the parasite, and containing instructions concerning general hygiene, especially as regards the disposal of faeces, will be widely distributed. Furthermore, lecturers will probably be sent into the field as educators in general hygiene. That there is ample room for such education is shown by Dr Stiles, who found that 68.9 per cent of 370 farm-houses in the sand and clay districts of North Carolina, South Carolina, Georgia, and Alabama had no privy and that 46.7 per cent of 77 farm-houses occupied by whites and 79.5 per cent of 83 farm-houses occupied by negroes had no privy.

It is quite reasonable to believe that the ultimate effect of the proposed campaign upon the poor whites will be far reaching. Not only will uncinariasis be greatly lessened among them, but, because of the hygienic measures introduced, other diseases, as for instance typhoid fever and various intestinal disturbances, should grow less frequent. One factor that should not be overlooked is the wholesome influence upon this class of people which the interest of the public at large may exert. That

this campaign may be the starting point of an eventual reclamation of the poor whites as useful citizens is not too much to be hoped."

TROPICAL MEDICINE AT MANILA

For some years past, we have from time to time given our readers extracts from the *Philippine Journal of Science* which is the medium for the publication of work done by the various American workers at Manila. We now welcome the publication of the *Bulletin of the Manila Medical Society*, which is owned and published by the organized medical profession in Manila. It bids fair to become an admirable medium for bringing the work of members of the society at Manila to the notice of the profession.

In the first place, we may notice that there has just concluded a meeting of the Far Eastern Association of Tropical Medicine (March 7th to March 14th, 1910), and we very much regret that an effort was not made to have the medical profession in India officially represented at this meeting—in the same way as Dr. Musgrave, of the Philippine Medical School, was present and took a prominent part in the work of the Bombay Medical Congress last year.

We hope later on to be able to report on the work of this meeting of the Far Eastern Association.

Commenting on the brilliant work which has been done of recent years in research in tropical diseases, the following remarks are made which we think worth producing *in extenso*—

"The brilliant results of research in tropical diseases during the last few years and the promising problems constantly presenting themselves to investigators in this field has left practically virgin the equally, if not more, important subject of general or clinical medicine in the tropics.

"After all, the strictly tropical diseases form but a small percentage of the pathological conditions which the medical practitioner is called upon to treat in warm countries. More than 85 per cent of the diseases encountered in general practice are the same as those seen in temperate climates, but modified in many ways by tropical environment. The study and elucidation of these modifications in etiology, pathology, symptomatology and treatment has received in the past but little consideration and is hardly noticed in any books on so called tropical medicine.

"*Medicine in the tropics*, therefore, means a great deal more than a study of tropical diseases. Actually and in the narrowest view in which it should ever be held, it is a study of physiology, metabolism, and all kinds of pathological processes as they occur in the tropics. In some of the well-known diseases there is but slight modification in the etiology or clinical picture from that of the same disease in temperate climates, while in others the differences are decided enough to merit special attention.

"It will be the aim of this department to deal with the more important of these conditions in addition to a brief monthly review of important subjects in general medicine."

In an interesting note on *esophagostomiasis* we find some remarks worth quoting on the

etiology of the clinical group of symptoms called dysentery. Much has been done of recent years, but much more still remains before we shall have got clear views on this subject. A couple of years ago it was rather rashly accepted that, practically speaking, ordinary dysentery was either bacillary, amebic or "verminous" (vile term). Recent work, in India especially, shows that it is not safe to attribute all bacillary dysentery to the Shiga organism, and the exact amount of pathological importance to be given to the amœba is far from settled.

In the article we refer to, at least seven varieties of parasitic dysentery are mentioned. We quote the paper as many of our readers may not have seen it—

"Protozoal dysentery of the amebic type is by far the commonest form of the disease met with in the Philippine Islands. Sporadic cases of malarial and of bilantidial dysentery are occasionally encountered, and are by no means rare. Kala-azar dysentery, however, has not been found here. During the past year, bacillary dysentery has again been epidemic, and this type of the disease has been more prevalent in the Philippines than it has since 1900. The verminous forms of dysentery are apparently rare in this Archipelago. Several cases of Schistosomal dysentery, due to *schistosomum japonicum* alone, have been encountered. Vesical infection with *schistosomum hematobium* has been found in only a few instances in emigrants from other countries.

"Very recently, December, 1909 H. Thomas (*Transactions of the Society of Tropical Medicine and Hygiene*, London) has called attention to another form of verminous dysentery, namely, *esophagostomal* dysentery, which he observed in Brazil. Brumpt in 1902, in a post mortem examination of an adult negro, discovered within cystlike nodules in the walls of the cecum and colon six immature female nematode parasites which were referred later, in 1905, by Railliet and Henry to the genus *esophagostomum* and named *Esophagostomum brumpti*. Apparently nothing was known of the clinical history of Brumpt's case, but the patient was supposed to have suffered from dysentery. The notes of the case reported by Thomas from Brazil are much more complete, although, with the exception of the fact that the patient suffered from severe dysentery during the three days he was in the hospital and that he became delirious and succumbed to the disease, the clinical data are lacking. The autopsy was performed ten hours after death. On opening the abdomen, chronic peritonitis was present, the omentum, coils of the small intestine, the cecum and ascending colon being matted together by old adhesions. The spleen was not enlarged, but a marked perisplenitis was present. The liver and kidneys were partly decomposed, but showed cloudy swelling. As the adhesions were very firm, the small intestine, cecum, ascending and transverse colon were removed *en masse* and placed in Kaiserling's fluid. On examining the bowel later, nodular cystic masses were found involving the walls of the ileum, cecum and colon. The area of the intestines infected, comprised the lower portion of the small intestine from the ileocecal valve to a distance of one meter above this point. The majority of the lesions in the small intestine appeared in the lower 35 cm of the ileum. The cecum and ascending colon were very extensively involved. The lesions consisted of cystic nodules situated in the walls of the intestine and varying from 7 mm to 23 cm in diameter. The tumors were situated in the muscular layer beneath the peritoneum in the submucosa or in the mucous membrane. They frequently projected markedly into the lumen of the intestine, in several

instances causing partial obstruction, and, in one instance almost a stricture of the small intestine. The tumours were opaque and grayish-black or bluish in color, with sometimes a few light ochre colored points in their margins. In the caecum and ascending colon, the lesions were so extensive that the walls of the intestine were very rigid and greatly thickened. Areas in the walls of the ascending colon were converted into a fibrous mass, honeycombed with small oval cavities in which parasites could be seen. On opening the cysts, worms were usually found lying in the semi-fluid grayish brown or black brown mass. The head of the parasite was sometimes embedded in the muscular layers. Besides the parasites, bacilli and cocci were frequently found within the cysts with leucocytes, degenerated and necrosed epithelium, blood cells and pigment. Over 187 tumours were observed in the caecum and the ascending colon. Fifty three of these cystic nodules were opened and in sixteen were found immature male, and in thirty seven, female parasites.

"The genus *Cesophagostomum* belongs to the family Strongylidae, the sub family of the *Ankylostomina* to the order of the *Cesophagostomae*. The order of the *Cesophagostomes*, according to Railliet and Henry, has as its principal characters the following: Caudal pouch with bifid frontal and middle ribs, the posterior and posterior external arising from a common trunk, the posterior bifurcated. Vulva at a short distance from the anus, uterus divergent. Ventral slit more or less evident.

"Finally the genus (Molin) *Cesophagostomum* answers the following diagnosis—Frontal extremity showing a slight cuticular projection (peristemic swelling), behind which there appears usually a second much fuller swelling (cephalic vesicle) which stops suddenly in the ventral region at the level of a transverse depression (ventral slit) existing even in the absence of the vesicle. Mouth opens into a buccal capsule of little height furnished with a short dorsal tunnel. Buccal margin, provided with lamellae (external crown), frontal border of the buccal capsule bearing, besides short tongues (internal crown), six cephalic papillae, two cervical papillae. Male with two (prebursal) papillae. Female with two caudal papillae.

"These authors found that the specimens submitted from Thomas' case possessed all the requisite characteristics of this genus. The male parasites measured from 17 to 22 mm long and 750 microns broad, the females, 16 to 20 mm long and 800 microns broad. The parasites from Thomas' case appear to belong to the species *Cesophagostomum stephanostomum* (Stossich, 1904) which has been found in the gorilla and chimpanzee, and which produces similar cystic tumours in the walls of the intestines of these animals. It is interesting to observe in Dr Thomas' case that none of the female parasites were found to be mature as they contained no eggs. No ova or adult worms were found in the intestines although two immature females were found free in the colon. The case, therefore, seems to have terminated at an early stage of the infection. The ova of the *Cesophagostomata* hatch in water in from three to four days after being deposited and the liberated embryos measure from 200 to 250 microns. Infection is supposed to occur through drinking infected water. According to Weinberg, the parasites enter the blood through the stomach walls and are disseminated by the blood stream to the coats of the intestine where they form their cysts. On approaching sexual maturity, the parasites break through the mucosa into the intestine where copulation occurs and the ova are frequently passed in the feces.

"In the Philippine Islands, *Cesophagostomum* is very common in *Cynomolgus philippinensis*. The infections are frequently severe ones, and marked in anition and weakness are prominent symptoms in many of these cases. The parasites are blood suckers

and their intestines may be observed containing large numbers of red blood cells.

DOES PELLAGRA EXIST IN INDIA?

In the various notices in the press of the recently appointed Committee to inquire into the nature of Pellagra, it is stated that the disease occurs in India. The only notice we know of the disease in India is a letter in these columns many years ago from an Assistant-Surgeon stating he had seen cases in Behar.

Can any of our readers give us any information about this disease in India. Maize (*makar*) is a common and good article of diet in many districts, but we have never seen or heard of any cases of Pellagra except those above referred to.

LIEUTENANT-COLONEL WOODROIF, Medical Department, U S Army, whose work on health and light in the tropics is well known, has written a useful note on the need for artificially cooled hospital wards in the hot weather. He writes—

"All that is needed is an electric fan to drive air around coils in which is circulating cold brine instead of the hot water of winter months. These pipes can be connected with the cold storage apparatus which should be in every modern hospital, or in the absence of such apparatus a simply contrived ammonia condensing pump and brine pump can be installed and driven by electricity. Calculations show that the cooling apparatus described by engineers as 'one Kilo watt ammonia compression refrigerating set,' is sufficient to ventilate a 12-bed ward, and cool the needed air from 95 to 55. It can be installed in a basement room ten feet square.

"The air will be reduced below its dew point, deposit its surplus water and be 'damp' as it leaves the coils, and it must be dried by being slightly warmed in a second chamber before delivery to the ventilating conduits. The latter should have openings under each bed, the warm foul air being allowed to escape near the ceiling, the reverse of winter systems. Cold pipes, of course, cannot be put in the ward because they would continually drip water of condensation and keep every thing damp.

"Very short experience should be sufficient to manage such a plant so that the room temperature could be kept at any required degree, even below freezing if that is found best for the pneumonias. Perhaps, it may be found that for summer cases it will not be necessary to go below 68 degrees. With such cool wards we could defy the hot season and cure cases now incurable, perhaps even preventing the necessity for sending so many acute cases out of the city, a matter which none of the poorer classes can afford without pauperizing themselves.

"In the tropics it would be necessary to build rooms like those of a cold climate hospital, with double walls, windows, floors, etc., but for the reversed purpose of keeping the heat out, and depending upon forced ventilation of cool instead of hot air. The present houses are designed to let in the exterior warm air as much as possible, their ventilation is dependent upon the winds and artificial cooling is therefore out of the question.

"Only a very slight degree of cooling in the tropics is necessary where the atmospheric temperature rarely goes above 90 degrees. I have recently made careful observations to determine how much cooling is necessary. It was found that as the temperature rose above 82 degrees, there was increasing difficulty in treatment and that above 85 F some patients could not recover,

whereas, if a cool wave came and reduced the temperature below 78 degrees, there was phenomenal improvement in cases on the verge of collapse if not actually moribund to all appearances.

"For over eleven years in the Philippines we have been sending our failures into cool air, though it was perfectly practicable to create the cool air around them.

"Cold air is now a standard orthodox therapeutic measure in many affections in temperate climates, and it is high time that it be introduced into the tropics where the need is infinitely greater to reduce the flood of our failures sent north or to the hills. What a God-send such a cool room would be in the tropics to fever patients sweltering in hot beds and gasping for a breath of fresh air. Indeed, there may not be any necessity for sending cases home or to Benguet. Tuberculosis crises could be kept from progressing while waiting for the next boat. Perhaps the long persisting influenza-like tropical bronchitis and other catarrhs—may be amenable to cure by cool air—and the saving of the dysenteric babies would be certain."

THE Mary Kingsley Medal of the Liverpool School of Tropical Medicine is awarded to two class of workers, *viz*, those who have advanced tropical medicine and science by administrative efforts, and those who have done so by scientific research. Fifteen such medals have recently been distributed as follows: (1) to Miss Pinnock, in recognition of the good work done by her brother Sir Alfred Jones, the founder of the Liverpool Tropical School, (2) to Mr. Adamson and Dr. W. Carter for help in founding the above school, (3) to Prince Augustin D'Asenbergh, ex-President of the Suez Canal Co., (4) to Surgeon Genl. W. Wyman, of the United States Marine Hospital Service, (5) to Sir Wm. McGiegor, the medical man who is now Governor of Queensland, (6) and to Sir A. Keogh, the late head of the Army Medical Department.

THE following have been awarded the medal for valuable contributions to the scientific and educational side of tropical medicine: (1) Professor R. Blanchard of Paris, for his services to medical entomology and parasitology, (2) Dr. Anton Bierni, recently the Director of the Research Laboratories of the school at Runcorn, and now Director of the Tropical Diseases Institute in Queensland, for the services which he rendered to the school during his connexion with it, (3) Professor Angelo Celli of Rome, for his long studies of malaria and other parasitic diseases in Italy, and for the campaign against malaria which he has led during the last ten years, (4) Dr. C. W. Daniels, the Director of the London School of Tropical Medicine, for his services to scientific research and to the cause of education in tropical medicine, (5) Colonel W. G. King, R.M.S., for his sanitary labours in the Southern Presidency of India and for his efforts regarding the foundation of the King's Institute at Madras, (6) Professor Nocht, the Director of the Hamburg School of Tropical Medicine, for his services to scientific research and to the cause of education in tropical medicine, (7) Professor G. H. F.

Nuttall Quick, Professor of Parasitology at the University of Cambridge and external examiner in tropical medicine to the University of Liverpool, for his researches in parasitology, (8) Major Leonard Rogers, R.M.S., for his researches in every department of tropical medicine for the last 15 years, and (9) Professor J. L. Todd, Associate Professor of Parasitology at McGill University, for the services which he rendered to the Liverpool school during his connexion with it.

HAS any of our readers tried the use of a weak solution of formaldehyde in water (two drachms to the pint of water) as a means of exterminating the harmful unnecessary domestic or septic fly? It is said that many die in the water, many close by, and all ultimately succumb. A fluid of this strength is said to be non-poisonous to men. It would be well worth trying this experiment in jails and hospitals near latrines, cooking-houses, etc. The sooner the harmful nature of the septic fly is more fully appreciated, the better.

BABU JUDU NATH CHOWDHURI, a well-known and philanthropic resident of Jhansi, has published an interesting and useful pamphlet on the importance of revaccination against small-pox, which is full of good advice. In the same pamphlet the great value of inoculation against plague and the use of anti-rinderpest serum is also advocated.

We congratulate Babu Judu Nath Chowdhuri on his public spirited endeavour to rouse his fellow countrymen out of their apathy towards matters of vital importance to their own well-being.

WE have received a copy of the *Mysore Health Almanac* for 1910. It has been compiled by Mr. P. Palpu, L.M.S., D.P.H., the Deputy Sanitary Commissioner to the Mysore Government, and is full of useful information of medical, surgical and public health interest.

THE following notification received from the Royal College of Surgeons of Ireland will be of interest to many of our readers on study leave or who contemplate such leave—

"The examination for the Fellowship of this College is now divided into two parts, *viz*, the Primary (Anatomy, Physiology, and Histology) and the Final (Surgery, Surgical Anatomy, and Pathology). The examinations are held three times in each year, in the months of March, July, and November. Examinations at any other time will not be granted in any circumstances."

WE observe (*B. M. J.*, March 8, 1910) that Dr. J. Ashburton Thompson, of the New South

Wales Public Health Department, has tried nartin B 1, nartin B 2, and ketin in a few cases of leprosy and found them entirely ineffectual.

In the *Journal American Medical Association* (February 12th, 1910), Drs Anders and Rodman of Philadelphia, U S A, advocate the use of appendicostomy in chronic dysentery—a treatment, it will be remembered, also advocated by Major Gordon Tucker, I M S, at the Bombay Medical Congress in February 1909.

R C BRYAN (*Annals of Surgery*, 1909, p 856), reviews 28 cases of rupture of the spleen in typhoid fever. He believes that it occurs more frequently than is usually believed, as many cases are diagnosed "perforation," and surgical treatment is often not resorted to.

BOILS can often be aborted by puncturing them with three or four layers of tincture of iodine.

Reviews

Keen's Surgery—Vol V—W B Saunders and Co

THIS volume completes a work which has been shared in by seventy collaborators. The complete treatise contains 5,500 pages or an increase of 1,500 over the number originally promised. The contributors to the present volume are with two exceptions Americans, so that the international character of the book has been practically eliminated. The names of the writers are not so familiar to English readers as was the case with the previous volumes. This is probably because the subjects dealt with are mostly of a general nature and so do not call for treatment by men who have made their names famous in special branches of Surgery.

The article on the surgery of the vascular system is by Matas, of New Orleans, it is so full and up-to-date as to constitute practically a monograph on the subject. The figures given regarding suture of the heart probably represent the results in too rosy a light, but they show beyond doubt that wounds of the heart may definitely be regarded as within the range of surgical intervention. Cardiac massage through an epigastric incision in cases of heart failure is said to have proved successful in from 6 to 34 per cent of cases. The former figure is probably the more accurate but even if only six per cent of the cases recover under existing circumstances, it is probable that in future when the procedure will be adopted early instead of after everything else has been tried, a good many lives will be saved. There is a very complete account of arteriorrhaphy which is likely to be of academic

rather than of practical interest to men working in India. Trendelenburg's suggestion to remove an embolus from the pulmonary artery through an incision in the right ventricle, while hæmorrhage is controlled by pressure on the superior vena cava is mentioned as having been attempted thrice without success, the fact that a procedure of this kind should be carried out on the human subject gives one some idea of the length that the German surgeons are prepared to go. In dealing with aneurism, Matas lays stress on the frequency with which the ablest surgeons have made tragic mistakes in opening aneurismal sacs in mistake for an abscess and in amputating limbs on the supposition that the aneurism was a malignant tumour. The preliminary application of some means of arresting hæmorrhage and the exploration of the tumour are very properly insisted on in every case where there is any possibility of the existence of an aneurism. The operation of endoaneurismorrhaphy is recommended as the ideal procedure for most aneurisms, it appears to have become established in America, and the results obtained seem to justify its adoption.

The surgery of the female genito-urinary organs is dealt with by three Philadelphian writers, Montgomery, Fisher and Brooke Bland, all the commoner operations are clearly described and the 230 pages which are devoted to the subject contain an excellent short account of surgical gynaecology.

The rest of the book deals with general subjects such as surgical technique, ligature of arteries, amputations, plastic surgery, æsthetics and the use of X-rays in surgery. The articles on these subjects are concise and are extremely well illustrated, but one would have expected to find a rather fuller account of surgical technique in a book of this size. In the article on æsthetics one naturally turns with interest to the account of spinal anaesthesia. The statistics given show a mortality ranging from one per cent to one per thousand, but the writer claims that many of the cases were those which were unsuited for a general anaesthetic and that the figures deal with the experimental stage of the method and, therefore, may reasonably be expected to be greatly improved on in future. The rule is laid down that it should only be used in those cases where a general anaesthetic is inadmissible and in cases where the operation is below the costal margin. Altogether it would appear unlikely that the method will, to any great extent, replace general anaesthesia as a routine and at present it is impossible to lay down dogmatic rules as to the class of case in which its use is advisable or even justifiable.

Taking the book as a whole, the only adverse criticisms that can be made are that it deals with each subject rather too much from the point of view of the specialist working under the most favourable conditions and that the subject of surgery is not dealt with in so broad and general

a manner as is the case with the 'one man' text-books. It cannot be regarded as superseding and rendering unnecessary the older text-books, for it not infrequently fails to supply the information regarding some special point that is sought from it, but as an account of the most up-to-date knowledge of the various special branches of surgery it is probably without an equal in the English language, and can be recommended as an extremely valuable addition to the library of every surgeon to whom the cost and bulk of the volumes are not insuperable obstacles.

Paludisme—**Pu CH GRALL** et **E MARCHOUX**
Pp 564 J B Baillière et Fils, Paris

THIS monograph on Malaria is the first volume of a series of books dealing with special tropical diseases written by members of the French colonial military services, it is published in paper covers at the reasonable price of 12 francs or less than ten shillings, or bound in cloth at half as much again.

The volume opens with a very fair and impartial account of the pioneer work done by men of all nationalities, this is condensed within 26 pages. Next comes a very well illustrated account of the morphology of the anopheles mosquito and of the malarial parasite, in which free use is made of the researches of Nuttall, Shipley, Blanchard, Schaudinn and Ziemann. In the account of the practical methods of collecting and examining mosquitos and of making blood examinations, the descriptions of the various workers including Stephens and Christophers are freely given in original, references to the sources of information being scrupulously given.

The clinical account of the different types of malaria is exceptionally full, perhaps almost too full, for it suggests that the aberrant forms of malaria are more commonly met with than is the case in actual practice. The methods of prevention are all given at length with indications as to the conditions under which each method may be expected to prove successful, in fact, all through the book a fair and impartial statement of the researches of the best known workers, whether French, German, Italian or English, constitutes a striking feature. The book has, therefore, its special value, not as a dogmatic text-book for the beginner, but as a résumé of the most important work done from the discovery of the malarial parasite up till the most recent times. Special mention is made of the necessity of giving larger doses of quinine to young children than are generally considered sufficient. Regarding the subcutaneous injections, the authors point out the possibilities of unpleasant or dangerous after-effects, especially from the use of concentrated solutions, and they add that even with the best formulæ the action is no more rapid than when administration by the mouth is adopted. They also point out that the very large doses that are sometimes recommended

have no advantage over moderate doses. Curiously enough, intravenous administration is scarcely mentioned and appears to be regarded as outside the range of practical medicine.

One also looks in vain for an account of black-water fever: there does not even appear to be any discussion as to the possibility of this disease being a form of malaria.

The absence of an index is a serious defect in a book which is essentially one of reference.

In spite of these defects the work will be found to be full of interest and for anyone who has not quite forgotten his French it will amply repay perusal.

Surgical Diagnosis—**By DANIEL N EISENDRATH**, A.B., M.D., Professor of Surgery in the Medical Department of the University of Illinois, &c. Octavo, 885 pages, with 774 illustrations (27 in colours). Price 21s. Second Edition. Messrs W B Saunders & Co.

EISENDRATH'S "Surgical Diagnosis" is another of Messrs W B Saunders' text-books, lavishly bound and illustrated. It is the 2nd edition within two years. The ordinary hard-and-fast system of grouping subjects is put aside, and as far as possible the author has attempted to deal with the diagnosis of disease, bearing in mind "the clinical picture as one meets with it at the bedside." Thus all the effects of injuries to the abdominal viscera are discussed in one place, and not under separate headings dealing with each viscus. The system is essentially practical and has commonsense, and there is much to commend it when dealing with a matter-of-fact subject like clinical diagnosis. We have read through the various sections of the book, and our impression both as regards the completeness of the parts and the arrangement of the subject is most favourable. The section dealing with the diagnosis of renal lesions is particularly complete. The illustrations are numerous, and being for the most part photographs of patients, they leave little to be desired as regards the accuracy with which they represent the various conditions.

Lessons on Elementary Hygiene with special reference to the tropics—**By D T. PROUT**, M.D., late P M O Sierra Leone. 2nd Edn 1910. London J and A Churchill.

THIS is the second edition of a very useful series of lectures on elementary hygiene and sanitation as applied to the conditions of tropical countries. It is intended for use in school in the tropics, that is, for the instruction of youths at school in the elements of hygiene with special reference to life in tropical countries.

It, therefore, necessarily contains a large amount of elementary teaching in physiology and anatomy. The book is well illustrated.

We have read the little volume with great interest. There are many chapters well worth perusal by the medical man, e.g., those on diet, beverages, water-supplies and clothing.

We know of no book in use in India dealing with this important subject quite in this way, and we commend Dr Plout's book to the attention of teachers and others interested in the popular teaching of hygiene in India

Synopsis of Surgery—By ERNEST W HEY GROVES, M.S., F.R.C.S. 2nd Edition. Revised and Illustrated John Wright and Sons, Bristol

THE title of the book describes its aim and scope, it is an attempt, in the words of the preface to the 1st edition, to make an epitome of the salient facts in surgical practice, and we may add that the object has been admirably achieved. New chapters have been added in this edition on Antisepsis and Asepsis, Shock, Anæsthetics and Diseases of the Colon, and the chapter on Surface Markings is now well illustrated. The subject matter is excellently arranged for reference, and information tersely but clearly given. Not only should the book prove very useful for students in briefly revising a big subject, but also to busy examiners, and not less so to the general practitioner and Civil Surgeon, who has perforce to keep his library within reasonable limits. There is a complete index.

Four Common Surgical Operations in India—By MAJOR P C GABBETT, M.S., and MAJOR R H ELLIOT, M.S. Higginbotham & Co, Madras

THIS small book is quaintly "dedicated to the hope that the varied surgical experience of the I M S may be collected into the form of a book before it is too late." Whether we agree with Major Gabbett or not in his somewhat pessimistic views of the future, we are cordially at one with him in this suggestion, and congratulate the joint-authors on the first instalment. The operations dealt with are for Hernia, Hydrocele, Elephantiasis of the Scrotum, and Cataract Extraction, the notes on the latter subject being written by Major R H Elliot. The book abounds in practical hints and should be studied by all who are engaged in Surgery in India. To the young Civil Surgeon its suggestions on many points and particularly on asepsis in private practice should be invaluable. The method of preparing the conjunctival sac which has been attended with previously unprecedented success is clearly detailed. There is also much "human interest" in some of the directions given. If we may be permitted one small criticism, it is to ask what are "tablets of normal saline"? We should also like a little more light on the method of dealing with those troublesome cases of Hernia in which the cord forms an integral portion of the sac wall. We commend to the attention of the author the use of glycerine or 4% saline solution for preserving rubber gloves. The type is clear and good. A large work on Surgery in the tropics would be welcome.

The Practice of Surgery.—By WALTER GEORGE SPENCER, M.S., F.R.C.S., and GEORGE ERNEST GASK, F.R.C.S. 1,207 pp with 20 Coloured Plates, 28 Skiagram Plates, and 707 black and white illustrations. J & A Churchill, London, 1910. Price 22s nett.

THIS book is the tenth edition of the work originated by the late Mr W J Walsham and is in all respects a worthy successor of previous editions. The authors have had the assistance of many collaborators in the sections on special branches of Surgery. In this edition considerable changes have been made in the text, together with some rearrangement of the order of the subjects. The work is divided into twenty-one sections, commencing with two introductory sections on General Surgical Pathology, and General Surgery, followed by section on the Surgery of the Blood-vessels, Nerves and Muscles, and Bones and Joints.

Thereafter, a regional classification is followed, which is well adapted for purposes of reference. It is impossible within the limits of a brief review to indicate the scope and information contained in this work, it will suffice to say that it is within our knowledge one of the most complete works on an enormous subject in such a compact form, and we strongly recommend it to Civil Surgeons and others in India as an ideal work of reference, on all branches of Surgery. The illustrations, particularly the Skiagrams, and coloured plates are excellent and greatly enhance the value of the volume. The authors, we are interested to see, favour a commonsense modified antiseptic routine, but we note a curious misapplication of the term "superheated steam" for the sterilization of fabrics, surely, high pressure saturated steam is meant.

A wise conservatism is preserved with reference to Vaccine-therapy and Biers' congestion method. We also note that blunt-pointed scissors or the finger may be used to scratch through the prostatic capsule. This is certainly not Frier's teaching and their use is likely to lead to trouble. In conclusion, we must congratulate both the authors and the publishers on the production of an excellent work of reference in a compact form and at a phenomenally low price.

The Prevention and Treatment of Abortion—By F J TAUSSIG, A.B., M.D., Lecturer in Gynecology, Medical Department, Washington University, &c. Pp x + 180. Illustrations 59. St Louis C V Mosby Company 1910. Price not stated.

THIS book, as stated by the author in the Preface, has been written primarily for the use of the General Practitioner, as in the writer's opinion (and in this we are in complete agreement with him) the subject has not received the attention it deserves (by reason of its frequency and importance) in the text books on midwifery. The opening chapters of the first part of the work deal with the anatomy of early pregnancy,

the pathology and etiology of abortion, this is followed by sections on the symptoms, course, diagnosis, and prognosis of this complaint.

Those portions dealing with the diagnosis are especially good and treat the subject and the difficulties so often met with in such cases in a very full and satisfactory manner.

The second part of the book, consisting of four chapters on the prevention of abortion, gives a very complete account of the subject.

Part three is concerned with the treatment of the condition, and the teaching therein contained is thoroughly up-to-date, and in accordance with the teaching of most English-speaking schools on the subject, if anything, the author errs on the side of being too conservative in certain cases, but remembering that the book is written primarily for the general practitioner, this is certainly a fault in the right direction.

The work closes with four appendices dealing respectively with missed abortion, mole pregnancy, therapeutic abortion, and ectot and its preparations. All of these sections will be found to contain much useful and suggestive information.

We can cordially recommend the book to the student as well as to the practitioner as one of much interest and full of useful and practical information.

The printing is in clear bold type, and the illustrations and general "get up" of the work leave little to be desired.

MEETING OF THE MEDICAL SECTION OF THE ASIATIC SOCIETY OF BENGAL, FEBRUARY 1910

THE minutes of the last meeting were read and confirmed. The Secretary announced that, as a result of a memorandum submitted by the medical members of council, the Council of the Society had sanctioned the expenditure during the next two years of a sum of Rs 3,000 on the purchase of standard medical works as a basis of a medical reference library. With the large number of medical journals already received this will go far towards supplying a much needed want of the profession, and enable members to obtain information in difficult cases. As books and journals can be taken out or sent to members, the library should also be of great value to members residing at a distance from Calcutta. The following resolution was proposed by Lt-Colonel Nott and seconded by Major O'Kearney and carried unanimously: "That a vote of thanks be passed to the Council for the substantial grant towards the formation of a medical reference library."

Captain J W D Megaw, I.M.S., showed the following cases—

The first case was one of traumatic stricture of the oesophagus, illustrating the value of fibrolysin. The patient was a lad of 16, who had

accidentally swallowed about four ounces of liquor potassæ ten months before coming under treatment at the Presidency General Hospital, Calcutta. He had been unable to swallow solid food for six months, and for three months before admission he had been able to swallow only liquids and that at the rate of a teaspoonful at a time, any attempt to swallow more being promptly followed by regurgitation. An oesophageal bougie passed to a distance of 14½ inches from the incisor teeth and even a fine whalebone bougie 1-12 inch in diameter could not be passed through the stricture. Injections of fibrolysin 23 cc on alternate days were started, and though no other treatment was adopted in ten days, he was able to swallow bread and milk, while in a fortnight he could manage bread and butter and lightly boiled eggs, and the small bougie could be passed with ease, though a bougie of 1-6 inch in diameter would not pass. Owing to the fact that attempts at passing a bougie were followed by increased difficulty in swallowing and by pain, the injections of fibrolysin were the only treatment adopted for the following fortnight, but as the condition did not further improve, mechanical dilatation was cautiously commenced, the fine bougie being left in position for an hour or so at a time on alternate days, and then a fine laminaria tent was introduced and kept in position for half an hour at a time. Then larger sizes of laminaria tents were introduced every other day till dilatation was gradually brought about, so that after about a month a small olive-ended metal bougie could be passed. By persevering with bougies of gradually increasing sizes, eventually in about two and-a-half months an instrument of over half an inch in diameter could be passed, and now the boy is able to swallow food of any kind without trouble.

It would appear that the injections of fibrolysin rendered valuable assistance in this case in making it possible to introduce a small bougie, as on admission it appeared very doubtful whether the smallest available instrument could be passed.

The second case was one of pneumothorax which had been cured by paracentesis followed by continuous drainage of the escaping air by means of a rubber tube attached to the cannula and dripping into a jar containing normal saline placed at a level of about three feet below the cannula.

This was the third case of pneumothorax treated by me in this way, and all three cases resulted in a rapid cure. All the cases were phthisical, two of them being in an early stage.

The first case was treated at the Medical College Hospital, about 3½ years ago, and the line of treatment as adopted was a modification of that described in Quain's Dictionary of Medicine and was decided on after a consultation with Major Rogers as to its probable efficacy.

Major Rogers' experience of pneumothorax in the *post-mortem* room convinced him that death was due to pressure on the heart and lungs by accumulated air, and he, therefore, strongly approved of the suggestion to treat the case by continuous drainage. The patient was in a very critical condition, and on establishing free communication between the pleural cavity and the outside air in the manner described, the change in his condition took place with dramatic rapidity, about two minutes being the time needed to restore him to a condition of comfort and well-being. Air continued to bubble from the tube for two days and then ceased to escape. The patient carried on his work as a clerk for two years after this, but eventually died of phthisis a few months ago.

The second case was treated in the same hospital, the result being similar except that when patient insisted on leaving hospital considering himself as cured, he had signs of fairly advanced tuberculous disease of the lungs, so that it is not likely that he survived more than a few months.

The third case which was shown at the meeting was an East Indian man of 40, who gave no history of antecedent lung trouble, he had been suddenly seized with pain in the epigastrium 12 hours before admission to the General Hospital, Calcutta, this was followed by gradually increasing dyspnoea, and on admission he complained of pain in the right side of the abdomen just below the liver, he had extreme dyspnoea and orthopnoea. There was an area of hyper-resonance on percussion in the right axilla with almost complete loss of the breath sounds, but the "bruit d'anane" could not be elicited, and at the level of the nipple the girth of the right side of the chest was $\frac{1}{2}$ in less than that of the left side. On X-ray examination the clear space occupied by air between the partly collapsed lung and the chest wall was quite obvious, and so the diagnosis was placed beyond any reasonable doubt. A trocar and cannula were introduced in the sixth space in the mid-axillary line, and on removing the trocar, the air escaped with considerable force, and on again examining with the X-rays the clear space which had been seen was found to have become obliterated. A rubber tube was attached to the cannula and allowed to dip into a jar containing sterile saline, but no further escape of air took place, so it was supposed that the communication between the lung and pleural cavity had become closed up and in consequence the cannula was removed. After 16 hours the patient was in nearly as bad a condition as before, with the same physical signs, so it was decided to introduce the cannula again and to keep up continuous drainage in the same manner as had been adopted in the previous cases. Air continued to escape in gradually diminishing amount for the next five days, and the cannula had to

be taken out from time to time owing to its becoming blocked by a fibrous exudate. Beyond some pain and pleural friction in the immediate neighbourhood of the puncture which cleared up in a few days, the patient had no further discomfort and insisted on leaving hospital at the end of 23 days to resume his work as clerk on board a coasting steamer. He had signs of consolidation of the right apex of the lung and tubercle bacilli were found in his sputum, so that there was no doubt as to the existence of tuberculous disease.

It is remarkable that this line of treatment is so seldom carried out, though it is described in Quain's Dictionary ten years ago, it is not even mentioned in the latest edition of Clifford Allbutt where the most radical treatment suggested is paracentesis with stripping of the affected side, and the remark is made that "treatment in most cases can only be palliative and symptomatic." My experience in these three cases convinces me that in uncomplicated pneumothorax the treatment is undoubtedly the proper one and that it will give the most gratifying results to anyone who carries it out.

It seems just as great a mistake to allow a patient to die from an accumulation of air under pressure as from an accumulation of fluid or pus, and relief in the former case can be carried out more easily and with much greater safety than in the latter.

It may be noted that unless pneumothorax is thought of, mistakes in diagnosis may easily arise in these cases, the first case had been seen by three competent qualified men in Calcutta and was regarded as pleurisy or pneumonia, and the last case was sent up to the ward as a case of "colic."

Captain Lister had treated a very extensive scarring in a boy with 15 minim injections. The superficial scar became softer, but there was no effect on the deeper portion.

Colonel Maynard said that his trials of fibrolysin in eye work had been disappointing. In one case of very extensive scarring of the iris, it produced very marked increase of the vascularity of the tissue, but no permanent improvement resulted.

SPECIAL ARTICLE

No 1

SMITH'S OPERATION FOR CATARACT

In our present issue we publish an article by Major P. P. Kilkelly, M.S. which analyses the results obtained in 25 operations performed by Lt Colonel Smith himself in Bombay at the time of the great meeting of the Medical Congress there last year. On our table we also find a mass of literature on the subject of this operation which shows the world wide attention with which it is being regarded, and this perhaps, will be our apology for giving so much space to this subject which, though of great interest to many of our readers, cannot be expected to interest all.

We consider, however, it to be our duty to call attention to the mass of papers on Smith's operation in various periodicals which cannot be available to most of our readers.

In the *Lancet* (Oct 16, 1909), Captain A E J Lister, B.S. (Lond), F.R.C.S. (Eng), republishes his paper read at the Bombay Congress (of February 1909) which is available now to all our readers in the admirable volume of the *Transactions*. We need not refer further to this paper than to state that it is the first serious attempt made to analyse the results of the great work done in Smith's clinique and that the opinion of the writer is strongly in favour of Smith's methods.

In *The Journal of American Medical Association* of September 4th and September 11th, 1909, we find the same subject discussed at length.

So many Ophthalmologists have now visited Lt Colonel Smith's clinique that his work is well known in the United States. In the above quoted *Journal A M A* (p 777) Dr D W Greene of Dayton, Ohio, has a long article, based on what is to operators in India the small experience of 75 cases. He rightly says that "the complete and satisfactory disposition of the capsule is the beginning, middle and end of our troubles." He quotes Smith's statistics of 68 p c loss of vitreous and 0.3 p c of iritis and quotes Dr A Knapp as having confirmed these figures at a visit to Major Smith's clinique, and wisely attributes these results to the "marvellous skill" of the operator and the earlier age of patients, degenerative changes in the vitreous (he says) being more marked in later years. Dr Greene has seen Smith do this operation in New York and says "the operation can be learned only at the elbow of one who is capable of demonstrating it" which Lt Colonel Smith himself has always said.

Dr Greene goes on to say that Smith's operation will receive its first (general) recognition in the treatment of immature cataract. We make the following extracts from Dr Greene's paper —

"Expression within the capsule offers the following advantages —

- 1 A cataract can be removed at any stage
- 2 No dissection is ever necessary
- 3 There is comparative freedom from post-operative inflammations
- 4 There are no capsule entanglements, prompt healing is the rule
- 5 The method is especially adapted to institutional work, one operation does all
- 6 No ripening methods need be tried
- 7 The result is better average vision, which does not change with time, if the fundus conditions remain favourable

The disadvantages of the method are the following —

- 1 The only important one is greater liability to loss of vitreous for the average operator
- 2 From a cosmetic point of view the wide, updrawn pupil (if it results) mars the appearance of the eye, while it may not be a disadvantage to vision
- 3 And lastly, a skilled assistant is always necessary in performing the operation

"It is not my desire to be considered a champion of the Smith operation until I have seen more of the ultimate results which follow it, among white people, living under different climatic and dietetic conditions than average Indians, but having emphasized its strong points, and admitted its weak points as I have seen them, I cannot avoid the conclusion that it is a long step toward the ideal operation which we are all seeking. Perhaps it will not be so in the hands of everyone, but in the hands of the few who will learn to do it well I believe it has a promising future."

"SUMMARY OF VISUAL RESULTS"

Total Number		With Loss of Vitreous	
Cases	Vision	Cases	Vision
3	20/15	4	20/20
30	20/20	2	20/30
18	20/30	3	20/50
4	20/40	2	20/70
9	20/50	2	P L
5	20/70	—	—
2	P L	13	—
1	0	—	—
3	No record	1	20/20
75	—	3	20/50
		4	—

"Average vision for 72 better than 20/30 about 20/27, to be exact"

"SUMMARY OF ACCIDENTS AND BLOOD PRESSURE"

"Vitreous loss, healing delayed more than five days"

Cases	B P	Cases	B P
3	150	2	150
2	160	2	160
3	180	2	170
3	190	1	180
1	200	1	185
1	220	3	190
—	—	2	210
13	Average B P	175 4	230
		14	Average B P
			174 6

"For comparison with results obtained by the Smith operation, I submit the following statistics from my last seventy-five regular operations compiled by my assistant, Dr W C Cook, National Military Home

Cases	Vision	
10	20/20	5
16	20/30	1
17	20/40	1
10	20/50	1
5	20/60	—
2	20/70	75
7	20/100	—
	Average vision	20/40

One patient had slight loss of vitreous, 2 had slight attacks of glaucoma, 20 had a degree of iritis requiring treatment, 35 eyes required dissection, 9 patients whose eyes needed dissection refused it, 1 eye was lost by iridopyelitis after a secondary operation."

In the same *Journal* (p 783) Dr H V Wurdemann, of Seattle, Washington, publishes his paper. He goes in for the history of the operation, and discusses the claims of Pagenstecher to having originated an operation for removal of the lens in its capsule. Wurdemann gives brief notes of 40 cases and concluded as follows (bringing in of course the old familiar tag which did duty in the pioneer days of Litholopy in India about the lesser vulnerability of native patients — forgetful of the ill results of malaria, dysentery, etc.) —

"I am convinced that from the circumstances under which the Indian operators are placed, the apparent lessened susceptibility to infection of their patients, the fact that wounds on Hindoos, like those on the lower races and wild animals, are more prone to heal, than in the cultivated classes, and, above all, that these patients disappear from observation soon after the operation we must depend for the end results on the testimony of others who practice in more civilized countries, where the patient's life history can be followed with more exactness. Therefore, the reports of Cheney, Greene and others, although in proportion showing such a priority of patients, are of more value to us."

"If the dread of the remote complications is relieved by further experience, there is much to be said for the operation" (Elliot). If the ultimate results of the operation are good in the foregoing cases, I shall continue to practice it in selected cases.

"The operation is not one to be attempted by any but the most skilled operator, and even with him is not to be chosen as a routine method, for it is a far more dangerous operation, except in the hands of an operator whose touch is fine, who has no trembling fingers and whose judgment is the most exact."

A brisk discussion followed. Dr Peter Callan, of New York, said he had done the operation chiefly in cases of dislocated lens, and he hoped that inexperienced men who had not the facility to gain experience would not rush in owing to the success of Drs Greene and Wurdemann and of "Major Smith, who is in a class by himself." His "wonderful technique" makes all the difference.

Dr Arnold Knapp, of New York, first stated that Lt Colonel Smith's statistics are accurate but that the operation was "undoubtedly much more difficult than the ordinary one." Dr Casey Wood, of Chicago, spent two days of 10 hours each examining cases operated on by Smith's methods and he concluded his remarks as follows —

"If from this slight experience I might be allowed to venture an opinion as to the place of the Smith operation in ophthalmic surgery, I would say that, given an experienced, intelligent and skilful operator, working in conjunction with a tried and equally experienced assistant and counting success in cataract extraction entirely from the standpoint of the amount, quality and persistence of central sight six months after the operation the Major Smith procedure is the best method for extracting all forms of senile cataract with which I am acquainted."

Dr Percy Tredenbergh, of New York, gave the following remarks—

"It may be of interest to those present to hear of the after history of the operations done by Major Smith at the New York Eye and Ear Infirmary last summer in the clinic of Dr Gruening, then under my charge. One patient had had a preliminary iridectomy two weeks beforehand. The operation itself was performed without complications whatsoever, and that the assistant was sufficiently trained may be known from the fact that it was Dr Arnold Knapp. The thing noticed by all the observers here was that both of these patients complained of intense pain. The second point was that the expression of the lens seemed to take much more time than usual. Dr Callan has called attention to the fact that it is attended with a great deal of traumatism. When the patients' eyes were bandaged and they were sent back to the wards, I asked Major Smith when he wanted them dressed. He said "Let them go four or five days, there are no complications to be feared, and there is no necessity for an early dressing." Our practice is to redress them 24 hours after the operation. Acting on his instructions we let them go an extra day. In both cases there was an extreme reaction. In both cases there was very marked started keratitis. In the case in which the iridectomy had been performed combined with the operation a narrow iridectomy without reposition of the coloboma but immediate expression of the lens, there was very markedritis which progressed in spite of careful treatment. I had Dr Gruening come down and see the case. It went from bad to worse, and was one of those sluggish cases of iridocyclitis, and at the end of a month vision was practically nil. In the other case there was a severe striped keratitis, which gradually cleared up, but on the third day the patient, a woman of 63, complained of a great deal of pain in the eye and herpes of the cornea was found. I do not know whether the traumatism produced that or not, but it cleared up, and finally the sight was 20/50 with correction."

Dr Webster Fox, of Philadelphia, discussed the all important question is Smith's the operation for the ordinary surgeon or only for the most skilled operators, but his own reply at present was 'Noncommittal'. Dr F Allport, of Chicago asked if he was to give up a familiar and successful operation for one requiring extra skill and experience—which frequently yields startlingly brilliant results. He pointedly asked if an operator whose experience was limited to 25 cataracts a year was justified in doing Smith's operation.

Dr M Wiener of St Louis, was one of the early enthusiasts of this operation. He did 12 operations, in 2 of which the capsule ruptured and had 7 vitreous losses, he then gave up the operation.

Dr Mark D Stevenson, of Akron, Ohio, attempted the operation in 14 cases, with 2 vitreous losses and 1 severe iritis. Since then he has seen Dr Greene do this operation.

Dr J W Millette of Dayton, gave his experiences as an assistant of Dr Greene. We quote as follows—

The operation has some features which will hinder its universal adoption. 1. It requires a trained assistant. Major Smith and many of his followers say that the assistant is almost as important as the operator himself. 2. It requires a greater degree of skill than the capsulotomy method. Sufficient skill may be attained by any man who has skill enough to do the ordinary extraction, if he will practice. I do not advise practice on pigs' eyes, nor calves eyes, nor sheep's eyes. I have wasted dozens of them. They are most unsatisfactory. But a good live dog properly bound up, is a good subject. Rabbits are good the dog is the best in my experience. 3. There is a somewhat greater degree of violence than in the other methods, but the violence to the corner even is not so great as it seems. I have observed that the men who have been in these clinics and have placed the hook on the corner have been prone to begin with too much force. A little more force than the weight of the hook is sufficient, together with the pressure in one place with the spud. 4. There is also loss of vitreous more frequently. As to the future of the eye from loss of vitreous, up to one third, we have no positive statistics. We should hold ourselves agnostic. There may or may not be future evils resulting from this minor loss. 5. The cosmetic effect is not so good, but occasionally we do get that ideal keyhole appearance. Ordinarily the pupil is "U" shaped with a broad base and frequently displaced upward. However, I believe that there are four considerations to which we must give their deserved supremacy. The first is the permanent disposition of the capsule and its contents. Second a secondary operation is avoided. Third, postoperative complications are practically nil. Fourth, most important of all, we get better vision.

That valuable periodical *Ophthalmology*, Oct 1909, has Dr Wurdemann's paper published and beautifully illustrated, it has also a paper by Dr F Tooke, of McGill University, Montreal, on a capsule forcep, and (at p 75) it gives an extract from a paper by A. Elsching of Prague [*Archiv für Augen* 63], (1909, 189) who did 63 operations in Smith, out of 264 extractions.

"Out of the 31 simple expressions the capsule ruptured in 5, in 3 the lens had to be extracted with the spoon, in 6 vitreous prolapsed, in 2 vitreous entered the anterior chamber after expression of the lens, i.e., prolapse of vitreous occurred in 17.6%, laceration of the hyaloid membrane in 23.5%. Prolapse of iris occurred on the first day after expression in 12 cases, i.e., in 35%. No eye was lost, in 9 the result was fair (0.2 to 0.1 V), in the remaining cases very good."

A comparison with his 136 simple extractions without the capsule shows the great superiority of the latter. Elsching's experience with expression after iridectomy was not better. He thinks that the operator cannot regulate the exit of the lens with its lower or upper border first.

Prolapse of vitreous may happen before presentation of the lens or vitreous visibly follows the traction of the lens. Elsching found that the posterior capsule is more or less adherent to the hyaloid membrane, so that the vitreous is pulled forward with the extraction of the lens. The expression of the lens without prolapse of vitreous seems to depend upon the possibility of detaching the lens from the membrane in the hyaloid fossa. This, however, is absolutely independent of the kind of cataract, excepting partial cataracts in youthful individuals or in brunescens, or Morgagni's, cataracts. The rupture always occurred in the posterior capsule, which in very old people and in hypermetropic cataract is extremely thin.

The consistency of the lens seems to give no predisposition. Eyes with small cornea, of 9.5 mm diameter or less, furnish a contraindication for expression, as the diameter of the lens is too large to be easily delivered through a section even larger than two fifths of the border.

In several cases infiltrations of the corner developed, not from infections, as only Xerosis keratitis were found, and Elsching thinks that he better had omitted the cauterization in these cases.

Detachment of the choroid was relatively frequent.

Elsching attributes the better results of Smith to individual or racial peculiarities, and quotes Hirschberg's observation that the average age of Indians operated on for cataract is 40, in Germany 62. Elsching's technique cannot be accused as out of his first 13 expressions the capsule ruptured only in 1.

Dr G O Savage of Nashville, thinks he has devised an instrument "which afforded a way out of the difficulties and dangers of the expression of cataract." He calls this instrument the "cataract in capsule extractor." It is described but not illustrated.

Our admirable contemporary the *Ophthalmic Review* (November 1909) gave an excellent boiled down review of the various papers on Smith's Operation read at the Bombay Congress.

If we may make a comment on the above papers it is only to mention that the discussion on the merits of Smith's Operation is strangely reminiscent of the great fight that P J Feyer and D Keegan and other members of the Indian Medical Service had over the relative merits of Lithotomy and Lithotomy. In both cases the surgeons in India had to support their vast experience. This gave them the skill to do the admittedly more ideal if admittedly more difficult operation. Men who do a stone a few times a year will never acquire the *tactus eruditus* to do successful lithotomies, men who do a few cataracts a year will (we are bound to think) never acquire the skill needed for the successful accomplishment of the ideal operation as advocated by Smith. It seems probable that in India Smith's operation will become the ideal one especially for immature cataracts, we doubt if it will ever become the popular operation in Europe or America or be much used except by men who have learned it at Smith's elbow. It must also not be forgotten that there are many ways of removing cataractous lenses, and in the hands of experienced men the very highest results have always been obtainable by means of many different operations.

No 2

MOSQUITO OR MAN?

THIS is a book which it is not easy to classify, apparently written to educate the British public which as certainly a paramount interest in the conquest of the tropical world. It is also practically a history of the work done by the ever energetic Liverpool School of Tropical Medicine. It is apparently not written for medical readers though medical men will find it full of interest and full of facts and figures useful to the sanitarian.

As we say it confines itself, almost entirely, to giving an account of the great work done by the Liverpool School and

* Mosquito or Man? The conquest of the Tropical World. By Sir Robert W. Boyce. M.D., F.R.S., Dean of the Liverpool School of Tropical Medicine.

if it had called itself by some title indicating this fact we could have no quarrel with it.

As it is it ignores India and all its workers and except for allusions to Major R. Ross' work one would imagine that nothing had been done in India for the advance of tropical medicine since the great awakening caused by or possible simultaneous with, the Indian Medical Congress at Calcutta in December 1894.

We have never been strong supporters of "tropical" schools in non tropical Europe and to any one familiar with the vast amount of so called "tropical" diseases to be seen even in one morning's visit to the large hospitals in Calcutta, Madras, Bombay or Rangoon, it is almost ludicrous to see the scanty material provided in the so called "tropical" schools in Europe. The proper place for a tropical school is the tropics, and we look with great interest on the present movement for a great tropical school in Calcutta.

In the absence of clinical material the schools of Europe have very properly concentrated their efforts on the laboratories and splendidly equipped they are. The Liverpool school will also ever live to its credit the long series of Research Expeditions, and in this respect the supporters of that school are worthy of all the praise given them by Sir Robert Boyce, but the practitioner in the tropics soon finds that "tropical" diseases are far from everything, the ordinary diseases that flesh is heir to are common in the tropics, is in northern climes and no more important subject for investigation has before us than the incidence of "non tropical" diseases among people in the tropics and the changes in etiology and symptomatology that result from "tropical" environment.

To return, however, to Sir Robert Boyce's book. After preliminary chapters necessary in a popular book he describes the relation of the mosquito to man in connection with filarial and malaria diseases. One turns with special interest to chapter viii, where a summary is given of many anti malarial campaigns. As is usual with many writers when they wish to emphasise the terrible thing malaria is, they quote statistics dealing with deaths by the million, ignoring the fact that when they plead for greater accuracy in registration and diagnosis of "fevers" such figures, they find, shrink by an enormous percentage.

However we readily admit "the magnitude and importance of the anti malarial mosquito warfare" and we will briefly extract some remarks on the campaigns here summarised.

Take first the Italian Campaign, which* has been going on since 1902. Sir Robert Boyce quotes from a letter of Prof Osler to the *Times* (March 1909) in which it is stated that in 1887 malaria "killed 21,033 persons," whereas now this figure has dropped to 4,000 per annum.

Sir Robert Boyce next briefly mentions Ross' Campaign in Greece in 1906, and we learn that in 1903 a great success was reported in rendering the historic plain of Marathon healthy, in 1906 it is said that 90 per cent of cases of sickness was due to malaria, in 1907 after the efforts of the League it fell to 47 and in 1908 the amount of sickness due to malaria fell to only 2 per cent.

How much of this was due to better diagnosis and how much to the campaign?

The case of Ismahia is well known. Ronald Ross went there in 1901 and found the place one singularly easy to free from mosquitoes. There can be no reasonable doubt of the great improvement in the health of Ismahia, and if other more ancient cities and towns lent themselves as well to this form of sanitation and if our Municipalities were ruled in the way the great Canal Company rules Ismahia, and if they had the resources of that great company to back them the

tale of our attempts in municipal sanitation would be very different.

Interesting accounts are given of many other anti malarial campaigns in West Africa and there can be no doubt of the great improvements effected in those previously neglected parts of the Empire. General sanitation as well as special anti malarial sanitation has done much, and an improvement in the social habits and in the class of men sent out to these colonies has had mutually a very good effect.

Then comes the great case of Panama, the only place we know where "despotic hygiene" (the phrase is from Sir F. Treves) has been able to show what it can do. In 1904 a Chief Sanitary Officer was appointed with a staff of officers and men amounting to no less than 2,000 men—this to control a labour force of some 40,000 workers. This shows what can be done when money is no object,* but does not help us much when we think of the problem before us in, say, the tea gardens of the Durais, or the district of Jessore.

We need not quote the many other notices of anti malarial campaigns quoted by Sir Robert Boyce, they serve admirably their purpose in impressing upon the British public what can be done, and we have no right to quarrel with the book because it is not written for medical readers and omits many points vital to a proper appreciation of the work done in various anti malarial campaigns. To appreciate these we need detailed reports not written within a few months of a year, but after several years giving details of cost, methods, diagnosis, total death rates and the influence of general sanitary measures which usually accompany the special efforts of anti malarial campaigns.

We read this book as a slow passenger train carried us past the series of villages, towns, canals, channels, tanks and jungle which make up the landscape to the train traveller from Calcutta to Hughli, and the thought would arise where is the money to come from to carry out an anti malarial campaign in this network of jungle, tank, river, canal and water channel?

Sir Robert Boyce's book is certainly full of interest and for the great British public full of instruction, but to the medical reader it is disappointing, it just omits what he most wants to learn.

Correspondence

LANOLINE OR GLYCERINE

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—In his letter which appeared in your issue of February, Major Hutchinson holds that the main plea of my letter of the 3rd March, 1909, on the above subject, was that the killing of extraneous organisms in vaccine is a work of supererogation provided "Vaccine Institutes are constructed and conducted in all details with the knowledge of asepticism." As summed up by myself in my final paragraph, my contention was "Although I grant a diminution of extraneous organisms as represented by a sterile vaccine may, in respect to numbers, be of some advantage, surely this experiment shows that the killing of these is not of the transcendental importance usually held. In short, whilst this quality of killing 'extraneous organisms' may appeal to the fancy of anti vaccinists in England, cultivation of vaccine, so that it may attain its best characteristics, under conditions that will ensure asepticism in all details, and its subsequent preservation by any medium that will secure, in the tropics, and without artificial cold, the best duration of vitality, under ordinary conditions of service by Indian vaccinators are the points which seem to me those which should be held as of the first importance in India."

It must be remembered that the word "first" qualifying "importance in India" was in italics in the original. There is consequently here nothing to show, so far as my words are concerned, that I would not accept any medium for the killing of extraneous organisms as a desirable addition on my other primary requirements being fulfilled, nor these being fulfilled, would I disagree with Major Hutchinson's views, as expressed by him in the sentence he quotes from his Bombay Medical Congress paper.

I regret, however, I fail to follow his method of supporting his view that I am guilty of "dismissing contemptuously the modern desire for sterile vaccine," by his producing a table of results showing wholesale contamination of glycerinated vaccine with extraneous organisms, or to perceive why his sole deduction from Captain Christopher's experiments on mock vaccination quoted by me should be, "it is obvious that the vaccine must be issued in capillary tubes." I can only presume I could not have made myself correctly understood in my original letter. What, then, I consider the experiments teach is that presuming glycerinated vaccine be placed in the hands of a careful vaccinator in an absolutely

* We quote here from a more recent report on the Italian campaign (*J. A. M. A.*, Feb. 19th, 1910). "The anti malaria legislation adopted in Italy during the last ten years provides for the free distribution of quinine by the state to those suffering from malaria who are unable to secure it otherwise. For patients able to pay, quinine is sold at a nominal price at convenient places, e.g., at every post office in the country. A table showing the sale of quinine by the state and the mortality from malaria for successive years appears in the *Revista de Medicina y Cirugia* of Havana for November, copied from the *Revue d'Hygiene et de Police Sanitaire* of Paris. The article is by Bertarelli. In 1900, before the passage of the law providing for state distribution of quinine, the total mortality from malaria was 15,865. In 1901 it was 13,368. In 1902 the anti malaria law went into effect. In 1902 1903, 2,240 kilograms of quinine were sold or distributed gratuitously by the state. The effect on the malaria mortality was immediate, the number of deaths dropping to 2,908 in 1902 and to 8,519 in 1903. The sale of quinine gradually increased with each year, amounting to 24,351 kilograms in 1907 1908 and the mortality was proportionately lowered, being only 4,160 in 1907, or little more than one fourth of the mortality seven years ago. The profits to the state from the sale of quinine in 1902 were 34,000 lire (~6,800), in 1903 600,000 lire (~120,000). While much of the reduction in the death rate is due to the state distribution of quinine, part of it may be attributed to the rigid laws enacted for the extermination of the mosquito and protection against it. The laws of 1901 and 1904 require that all dwelling houses and specially all sleeping rooms in definitely designated endemic zones must be screened from June to December.

sterile condition and sterile instruments be used, the act of vaccination on the reasonably well prepared skin of a human being at once results in the vaccine being mixed with extraneous organisms that might be counted by thousands. It being granted that Major Hutchinson is correct in stating that "all workers with vaccine agree that the extraneous organisms are generally of a non pathogenic nature." I think the trend of my arguments is fairly obvious. Major Hutchinson refers to the "influence of the last straw on the camel's back" as "represented in vaccination under local conditions by the extraneous organisms in the vaccine." It seems to me however, that he has not correctly localized the "last straw."

Major Hutchinson's statement that at temperatures defined by him, lanoline became "rancid" is of the *post hoc*, and most certainly, not of the *propter hoc* character, and I would invite his attention to the necessity for securing correct lanoline for such experiments. I have in my own experience had repeatedly to deal with unsuitable glycerine of such acidity (verified by chemical analysis) that it rapidly killed the vaccine.

Major Hutchinson would apparently desire a reference to the statement by Dr. Copeman which I mentioned. He will find that at page 108, Vol VII *Public Health* December, 1894, Dr. Copeman is reported to have stated—"If, however previous to making a plate cultivation, the lymph has been intimately mixed with a certain proportion of either glycerine or anhydrous lanoline and subsequently kept protected from the air for a period of from a few days to a couple of months, it is found that all 'extraneous' organisms have now been killed out, and no growth occurs in gelatine or agar plates. At the same time the mixture will be found to have gained in efficiency as vaccine rather than the reverse."

In the *Journal of Pathology and Bacteriology* Vol II, No 4, May, 1894, page 425 Dr. Copeman states as follows—"From experiments which I have carried out, in part since this paper was written, it would appear that anhydrous lanoline possesses the property of inhibiting growth of saprophytic organisms in a similar manner to that of glycerine." I have no doubt that Dr. Sreenivasa Rao Bacteriologist to the Mysore Government, would be happy to give Major Hutchinson a copy of his careful paper on the same subject. Of course, I am aware Dr. Copeman has changed his views, but to the best of my knowledge he has never yet explained away his former conviction founded on *personal experiments*. In his reference to the subject in his work on vaccination, he not only fails to give his reasons but ascribes to me opinions on the subject of glycerine I have never expressed.

Major Hutchinson points out that flies and dust are unavoidable, and suggests that "it may be some years before the Local Governments of India are persuaded that they can afford to erect dust proof and artificially ventilated and cool buildings." I notice that in the plan with which his paper on vaccine is illustrated in the *Transactions* of the Bombay Medical Congress, the shed for calves and operation rooms are within thirty feet of each other and that another thirty feet separates the rooms set aside for mixing, despatch, sterilizing, etc. In the buildings at Madras, these particular errors have been avoided, and although there is no lack of arrangements there that could be improved, at least the actual mixing rooms and loading rooms are artificially ventilated with air filtered through cotton. The Local Government also sanctioned refrigeration and thus, when I left Madras, was about to be carried out but as, unfortunately, a red tape Public Works Department Officer could not tolerate this being done by the Sanitary Department, I believe the method to be employed is, after the lapse of many years, still "under consideration." I would add that the filtered air system is open to the criticism of being "extract" but at least dust is not obvious and flies certainly have "no admittance." I think, therefore the ideal I have advised of "Vaccine Institutes correctly constructed and correctly conducted" at the hands of Local Governments need not be regarded as so hopeless as Major Hutchinson conceives. It is for Sanitary Officers to continue to urge reform and not to be content with the "good enough" policy of the official holders of the purse strings.

Yours faithfully,
W G KING,
COLONEL, I M S

INSAN, BLIMA }
1st March 1910 }

I M S DRESS REGULATIONS

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I should be much obliged if you, or any of your I M S readers in military employment would kindly give information on the following points of dress for the Indian Medical Service. The dress regulations are out of print and it is almost impossible to obtain authoritative information regarding them—

1 What badges are worn on the collars of the blue serge coat and frockcoat?

2 Should the collars, shoulder straps and cuffs (or any of them) of the blue serge coat or frockcoat be of black velvet?

3 Is the red mess waist coat ever worn nowadays, or is it entirely superseded by the white waist coat?

4 Are gold lace stripes to full dress and mess dress overalls abolished?

5 Is a black feather plume worn on the white helmet in full dress or has it been abolished?

6 Has the sabbatuche been abolished for wear when mounted?

7 Are brass spurs still regulation wear for any rank in full or mess dress?

8 Have the loops of narrow gold lace along the broad gold lace at the cuffs and collar of the tunic been abolished for field officer's rank?

I am, &c,

"OUT OF DATE"

[Will some of our readers kindly reply?—ED, I M G]

TO OLD GUY'S MEN

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I should be much obliged, if you would permit me to make use of your columns, to ask all old Guy's men and women in India to send me news of any events that have occurred during the past year, either to themselves or others, for insertion in the Hospital Blue Book.

Dr. Mann, who is editing the same wrote to me last year, and I sent him all the news I could gather from the Guy's men I knew, but it was naturally very limited seeing how scattered we are in this country.

He tells me that news of appointments held, promotions, distinctions, marriages, &c are all welcome, and read with interest by old friends at home.

News should reach me not later than June 1st

Thanking you in anticipation

I remain,
Yours sincerely
HUGH WATTS
CAPT, I M S

HOSHIARPUR, }
PUNJAB }

LENS COUCHING IN INDIA

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I have to day received a letter from Lt Col H E Drake Brockman, I M S, which I shall be obliged if you will give publication to. Certain portions dealing with private matters have been omitted.

I greatly regret that I was led unconsciously to do an injustice to Colonel Drake Brockman, owing to my having been unaware of his interesting work, and I take the first possible opportunity of rectifying my mistake. I should like at the same time to acknowledge the courtesy which led Colonel Drake Brockman to give me this opportunity, in stead of himself addressing you on the subject.

MADRAS,
23rd March 1910

Yours, etc,
R H ELLIOT,
MAJOR, I M S

"I dare say that you will be much surprised at hearing from me but seeing some interesting remarks from you regarding the operation of couching of the lens by sutiahs in India in this month's *Indian Medical Gazette* I was interested. I see you mention in No 1 paragraph that the description given by the writer is, so far as you are aware, the first eye witness description of the couchers operation written by one who practises the usual &c, you have apparently never seen the article on this subject written by me in the *Transactions* of the Ophthalmic Society of the United Kingdom. I think in 1897 a paper entitled "The Indian Oculist and his Equipment" which was read by my uncle for me at one of their meetings in London, in that year in which a very full account of the operation is given by me and together with a complete set of sutiahs instruments presented to the Ophthalmic Society therewith which I was fortunate enough to obtain. My uncle when reading my paper and presenting the set of instruments on my behalf mentioned the fact that though he had practised in India for years and had many times tried to obtain these instruments he had never succeeded in doing so. The paper in question may possibly interest you, for there are other sides to the cunning (or rather as you might term it) of the sutiahs, I have caught no end of these men in India and in my service in all the important native states in India have always endeavoured to get the several dubarrys to pass stringent orders for the strict and immediate transfer out of their territories of all these men, for mind you they are a

pick of untrustworthy scoundrels, for if you will do me the honour to reading that article you will find that at my rate in some parts of India their practice is mixed up with deceit and chicanery of the worst kind, quite apart from the question of grievous hurt which their operations legally may turn into if one were to press the matter in a court of law. When I was Civil Surgeon of a district in the United Provinces (Muttra the place where I got hold of my first sutrah) I wrote a long official letter to the Government through the I. G. of Civil Hospitals pointing out the action of these sutrahs and their depredations on the unfortunate villagers, and showing that their action should be taken by the local Government to protect these unsophisticated folk in the villages from these sharks, but there were technical objections they said to interference in the matter, &c., and there it dropped, I have been able to get together three complete compendiums of their instruments, which are respectively in (a) Museum of Ophthalmic Society of United Kingdom, (b) Museum R. Coll. Surgeons of England (c) Museum of Royal College of Surgeons of Edinburgh, to all of which bodies I belong, they were much interested having them, this was 13 years ago now, and I have ever since unrelentingly kept up my crusade against them, and I flatter myself have been instrumental in saving thousands of eyes thereby it is a good deal for this reason that I always with many other I. M. S. medical officers in political employ regularly tour through these states in the cold weather and take along a portable hospital for operating on eye cases and really in most cases as a direct result I am gratified to find the "sutrah" conspicuous by his absence, for which, I think, I can certainly take the credit of being the first to bring publicity to notice of Government as well as our profession their nefarious practices. In that article I think you will find some note that in different parts of India, the pattern of "silla" or couching needle is different, for instance the sutrah of the Punjab or "Jawal" as he is called there has quite a different model of instrument to that used by his confreres in the United Provinces and Central India. I was also the first to bring to general notice that the majority of sutrahs in India belonged to the Kayasth caste, in which the craft is an hereditary one handed down from father to son, as you rightly surmise with only verbal instruction, and though I did once get hold of a book (hand written) from a sutrah on this subject, on translation it did not contain much of any information regarding the actual operation as practised by these men.

Yours sincerely,
H E DRAKE BROCKMAN

20th March

[We shall publish in an early number a paper on this subject by Lt Col Drake Brockman—Ed, I M G.]

THEVETIA POISONING

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—Two cases that I have had under my treatment lately may be interesting to your readers from a toxicological point of view.

In this part of Bengal after opium one of the commonest poisons is the fruit of "Thevetia Nerifolia" called by the Bengalis the Kalka or Kalki plant, probably on account of the resemblance of its yellow flower to the *kalka*, the put of the *hook* in which the tobacco is placed. The leaves are long and narrow and resemble those of the oleander. The Hindoostani name is Lard Kunel.

The shrub is very common round Bengali villages and is almost always in bloom.

The fruit resembles that of the almond tree.

The inner part of this fruit is pounded down and used as the poison.

I am told by the Bengalis that poisoning by it is quite common and two cases came under my treatment lately.

The first case was that of a young girl, about twelve years of age who had eaten, she said, five of the fruits. On admission to hospital about six hours after taking the poison her pulse was about 50 per minute and irregular. An emetic was given, but there was itching before this was given as a result of the poison.

Strychnine was given hypodermically, but the pulse gradually became slower till it was only 35 per minute.

Thereafter however, it began again to increase in frequency and by the following morning the only effects of the poison left were slight slowness of the pulse and nausea.

The second case was in a girl of 16 or 17 who had taken the poison with a view to suicide.

She said that she had ground up the cores of 15 of the fruits but could not tell definitely how much of this she had eaten.

She was brought to me seven hours after taking the poison in a very collapsed state. The pulse was then 52 per minute and irregular and weak, and gradually decreased to forty. I washed out her stomach but found very little remains of the

poison as there had been considerable vomiting before she was brought in. I gave her a hypodermic injection of 1/10 grain of strychnine. Thereafter the irregularity of the pulse became less and the pulse became much stronger though still diminishing in frequency.

The following morning the pulse had again increased to 50 a minute and the effects rapidly passed off. It is difficult to say exactly what a fatal dose would be as there is a good deal of nausea and a large amount of the poison is generally vomited up. I have, however, of another case in a village near that of the first case mentioned in which 20 were eaten. In this case the patient did not recover.

Yours, etc,

E MUIR M.B., (M.B. (Edin)).

Kalna, Dist. Bardwan

March, 1910

TRANSMISSION OF PLAGUE IN THE ABSENCE OF RATS

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—Regarding Captain Walker's interesting paper in the issue of May I would like him or any one else to answer this question. What is there to prevent plague infected rats visiting camps when evacuation is carried out and continue to give such cases, as he had in his resort to evacuation?

Yours, etc

"M O H"

20th March 1910

SMALL INCINERATORS

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—Would any of your readers be good enough to give me their experience of incinerators (small) stating population type used, number of houses served, whether any special fuel used, nature of stuff burnt (especially if night soil and urine), whether successful, and if not why, and if cost of conservancy was lessened. A note as to the extent the smoke was complained of or was objectionable will be appreciated. I will acknowledge letters direct.

Yours, etc,

A G NEWELL, M.D.,

Health Officer,
Lahore

29th March 1910

[We also shall be glad to publish correspondence on this subject. At Monghyr Jail one of Rait's Incinerators works well, except during the rains, when a cover is needed.—Ed, I M G.]

Service Notes

DEPUTY SURGEON GENERAL ALFRED ETESON, C.B., Bengal Medical Service, retired, died in London on 15th February 1910. He was born on 29th April 1832, educated at Brinsford and took the diploma of M.R.C.S. in 1854, and the degree of M.D., St Andrews, in 1878, and entered the I.M.S. as Assistant Surgeon on 20th May 1854, becoming Surgeon on 20th May 1866, Surgeon Major on 1st July 1873, Brigade Surgeon, when that rank was first instituted, on 27th November 1879, and Deputy Surgeon General on 20th December 1883. After a tour of five years as administrative Medical Officer in Assam he retired on 13th January 1889. He served in the Mutiny, and was present at the relief of Arrah and advance on Jaggdespur, with the Sirmoor Field force, and in the operations in Shahabad. He was mentioned in despatches in G.O. of 13th August 1857, and the "London Gazette" of 4th December 1857, receiving the Mutiny Medal, and also, first fifty years later, the C.B., in the distribution of Mutiny Honours on 28th June 1907.

LIEUTENANT COLONEL DAVID STUART ERSKINE BAIN, of the Madras Medical Service, retired on 5th April 1910. He was born on 23rd July 1857, educated at Charing Cross Hospital, took the diplomas of M.R.C.S., and of L.R.C.P., Edinburgh, in 1878, and entered the I.M.S. as Surgeon on 31st March 1879, becoming Surgeon Major on 31st March 1891, Lieutenant Colonel on 13th March 1899, and being placed on the "selected list" on 23rd July 1907. For many years past he had been in Civil employ in Madras and latterly Civil Surgeon of Coorg and had been on furlough since 16th May 1908. The army list assigns him no war service.

COLONEL THOMAS STEPHENSON WELSH, Bombay Medical Service, retired, died on 11th March 1910, at Bandora Hill,

BOMBAY He was born on 14th November 1847 educated in the Royal Irish College of Surgeons, took the diplomas of L.R.C.S.I. in 1868, and L.K.Q.C.P. in 1879, and entered the I.M.S. as Assistant Surgeon on 1st April 1870, becoming Surgeon on 1st July 1873, Surgeon Major on 1st April 1882, Brigade Surgeon Lieutenant Colonel on 31st March 1897, and Colonel on 1st April 1900. He retired on 15th July 1895. The army list assigns him no war service. He took leave in order to accompany, as a Press Correspondent, the Afghan Boundary Commission of 1884-85, and, subsequently, wrote a short account of his travels under the title "From India to the Caspian on Journeys with and after the Afghan Mission," Bombay, 1893.

On the retirement of Colonel R. Macrae, I.M.S., the post of Inspector General of Hospitals in Bengal fell to Colonel G. F. A. Harris, M.D., F.R.C.P., I.M.S.

COLONEL HARRIS has had a very distinguished career as a Civil Surgeon in Nagpur and afterwards at Simla, and for several years past he has been Professor of Materia Medica in the Medical College in Calcutta. On the departure on furlough of Colonel R. D. Murray, I.M.S., last April Colonel Harris went to officiate as Inspector General of Civil Hospitals in the United Provinces, now becomes Inspector General in Bengal.

THE post of Inspector General of Civil Hospitals in the United Provinces is taken by Colonel Manifold, I.M.S., who is well known as a Civil Surgeon in those provinces and as a distinguished Central Asia explorer. It will be remembered that Colonel Manifold received promotion to Lieutenant Colonel for his distinguished work as an explorer in the little known land North of Upper Burma. Colonel Manifold took his M.D., B.Ch. in Edinburgh in 1886.

COLONEL W. G. KING, C.I.F., I.M.S., Inspector General of Civil Hospitals in Burma, has taken short leave up to 25th May 1910, on which date he completed his five years as a Colonel and will retire.

Colonel King will long be remembered in Madras and Burma as a most practical and level-headed Sanitarian. He has done much to push on medical work in Burma during his stay there, and the report we gave in April of the works of the Burma Branch of the British Medical Association shows how keen was Colonel King's interest in medical matters. He has always been a keen supporter of this "Gazette" and we have very frequently published communications from his pen.

We wish him long life and prosperity in his retirement. He is succeeded by Colonel H. St. C. Cairntheris, I.M.S., the P.M.O. of the Secunderabad Brigade.

CAPTAIN G. P. T. GROUPE, I.M.S., has joined the Civil Medical Department in the Central Provinces.

CAPTAIN A. W. OYERBROCK WRIGHT has joined the Jail Department, E. B. & A.

ON the return from furlough of Lieutenant Colonel W. J. Buchanan, I.M.S., he resumed his post as Inspector General of Prisons, Bengal, Major J. Mulvaney, I.M.S., who had officiated as Inspector General of Prisons, went on 16 months' furlough.

THE P. A. M. C. Journal for March 1910 has a very interesting article on Edmond A. Paules, of Paules's Hygiene for many years Professor of Hygiene in the Army Medical School at Netley.

COLONEL D. FRENCH MULLEN, I.M.S., Deputy P.M.O., H.M.'s Forces in India has been granted 8 months' combined leave.

THE services of Captain H. A. Dougan, I.M.S., are placed temporarily at the disposal of the Government of Burma.

THE services of Captain H. B. Scott, I.M.S., are placed temporarily at the disposal of the Government of Burma for employment on plague duty.

The Home Department Notification No. 149, dated the 15th February 1910, is hereby cancelled.

LIEUTENANT COLONEL C. R. M. GREEN, M.D., F.R.C.S., I.M.S., Professor of Midwifery, Medical College and Obstetric Physician and Surgeon, Eden Hospital, Calcutta is granted privilege leave for 3 months with furlough for 4 months in continuation with effect from the 7th April 1910.

CAPTAIN J. C. H. LEWISTON, M.D., F.R.C.S., I.M.S., is appointed to officiate as Professor of Midwifery, Medical

College, and Obstetric Physician and Surgeon, Eden Hospital, Calcutta, during the absence, on leave, of Lieutenant Colonel C. R. M. Green, M.D., F.R.C.S., I.M.S., or until further orders.

CAPTAIN J. D. SANDS, M.B., I.M.S., is appointed to be a probationer in the Chemical Examiners' Department and is attached to the Calcutta Laboratory.

COLONEL G. F. A. HARRIS, M.D., F.R.C.I., I.M.S., Inspector General of Civil Hospitals, Bengal, was granted privilege leave for six weeks, with effect from the 1st March 1910, and Lieutenant Colonel F. J. Drury, I.M.S., officiated as I.G.C.H. in Bengal.

MAJOR R. BIRD, F.R.C.S. (C.I.E.), I.M.S., Lieutenant Colonel J. T. Calvert, M.B., Lond., M.R.C.P., and Dr. Nilratan Sarkar have been elected fellows of Calcutta University.

THE following promotions in the Indian Medical Service are made, subject to His Majesty's approval—

MAJORS TO BE LIEUTENANT COLONELS, I.M.S.

Dated 31st March 1910

Allan James Macnab, F.R.C.S.
James Jackson, M.P.
Henry Smith, M.D.
Charles Neil Campbell Wimberley, M.B.
Ernest Wickham Hoie, M.B.
Ashton Street M.B., F.R.C.S.
John Bland Jameson, M.B.
William Dunbar Sutherland M.D.
Percy Carr White, M.P., F.R.C.S.F.
Edmund Hasell Wright
William Molesworth, M.B.
Clarence Forbes Feunside, M.P.
Charles Arthur Johnston, M.B.
Gerard Godfray Giffard

LIEUTENANT TO BE CAPTAIN, I.M.S.

Dated 1st September 1909

Norman Skinner Simpson

CAPTAIN J. F. JAMES, I.M.S., has been appointed Civil Surgeon of Mymensingh, vice Major D. R. Green, I.M.S.

LIEUTENANT COLONEL F. R. OZZARD, I.M.S., is appointed a member of the Commission of Inquiry into the conditions of health of the labourers on the Durries ter gardens.

CAPTAIN H. B. SCOTT, M.B., I.M.S., acted temporarily as Residency Surgeon, Buxard, from 23rd February 1910.

DURING the absence, on leave, of Lieutenant Colonel L. F. Childs, M.B., I.M.S., Lieutenant Colonel C. H. L. Meyer, M.D. (Lond.), acts as Professor of Medicine, Bombay.

MAJOR F. F. GORDON TUCKER, I.M.S., on return from leave, acts as Professor of Pathology, Bombay.

CAPTAIN E. C. G. MADDOCK, M.B., I.M.S., has been granted combined leave for twenty one months.

CAPTAIN A. D. WHITE, M.B., I.M.S., joins the Civil Medical Department, Bengal and relieves Captain Power Connor, I.M.S., at the Medical College, Calcutta.

CAPTAIN CONNOR, I.M.S., is posted as Civil Surgeon to Gyr.

CONSEQUENT on Major F. O'Kinealy, I.M.S., going to Simla as Civil Surgeon, Major B. Oldham, I.M.S., comes to Alipore, Calcutta and Lieutenant Colonel Sonder, I.M.S., goes from Gyr to Patna as Civil Surgeon.

ON the going on long leave of Lieutenant Colonel D. G. Crawford, I.M.S., he is succeeded at Hughli by Major J. W. Rait, I.M.S. Captain Emslie Smith, I.M.S., recently in the Chemical Department goes to Murshidabad as Civil Surgeon, vice Rait.

THE readers of this Gazette will miss the help so freely given of Lieutenant Colonel D. G. Crawford, I.M.S., who has gone on long leave. Colonel Crawford entered the service on 1st October 1881 and was put on the selected list for promotion on 23rd March 1909. He will complete thirty years' service on 4th December 1911, and will be sure to get promotion as a vacancy occurs. We will not say farewell to him here, as we hope to see him back again in India in an administrative appointment.

THE services of Lieutenant-Colonel F. C. Clarkson, I.M.S., are replaced at the disposal of the Government of Bengal on completion of his seven years as Sanitary Commissioner. Colonel Clarkson has gone home on long leave. He is succeeded as Sanitary Commissioner by Major W. W. Olemeshu, M.D., D.P.H., I.M.S., with effect from 10th March 1910.

CAPTAIN P. K. TARAPORE, I.M.S., has joined the Jail Department of Burma, Captain R. A. Chambers the Jail Department of the Punjab, and Captain F. H. Salisbury, I.M.S. the Bengal Jail Department.

CAPTAIN I. M. MACRAE, I.M.S., on relief by Captain Salisbury, as Superintendent, Central Jail Midnapore, reverts to the Jail Department of the United Provinces.

WITH reference to the Notification of the Government of India in the Home Department, No. 1496 (Medical), dated the 23rd of December 1909, Lieutenant Colonel H. B. Melville, M.B., I.M.S., Civil Surgeon, Simla (West) assumed charge of the office of Civil Surgeon, Simla (East), in addition to his own duties on the afternoon of the 3rd January 1910, relieving Captain J. C. H. Leicester, M.D., F.R.C.S., I.M.S., proceeded on leave.

CAPTAIN H. M. MACKENZIE, I.M.S., Health Officer, Simla, proceeded on one month's privilege leave granted to him in the Government of India, Home Department, Notification No. 154, dated the 21st of January 1910, with effect from the forenoon of the 7th of February 1910, making over charge of his duties to Lieutenant Colonel H. B. Melville, I.M.S., Civil Surgeon Simla (West), who will perform the duties of Health Officer and District Plague Medical Officer, Simla, in addition to his own.

MAJOR A. HOOTON, M.B., C.M., has been granted twenty one month's leave.

PRIVILEGE leave for one month and five days under Article 260 of the Civil Service Regulations, is granted to Colonel P. A. Weir, M.B., C.M., I.M.S. Inspector General of Civil Hospitals, Central Provinces, with effect from the 12th March 1910 on the subsequent date on which he may avail himself of it.

LIEUTENANT COLONEL R. B. ROE, M.R.C.S., L.S.A., I.M.S., Civil Surgeon and Superintendent, Lunatic Asylum, Nagpur, is placed in charge of the current duties of the office of Inspector General of Civil Hospitals, Central Provinces, in addition to his own duties, during the absence, on leave, of Colonel P. A. Weir, M.B., C.M., I.M.S., or until further orders.

CAPTAIN C. A. GODSON, I.M.S. joined Goalpara District, E. B. & A., as Civil Surgeon on 6th January 1910.

MAJOR D. R. GREFF, I.M.S., Civil Surgeon, Mymensingh, is allowed combined leave for two years, viz. privilege leave for one month and twenty eight days, under Article 260 of the Civil Service Regulations, with effect from the afternoon of the 7th February 1910, and furlough for the remaining period under Articles 233 and 303 (a) of the Regulations.

THE King has approved of the retirement of the following I.M.S. Officers—

Surgeon General Sir Gerald Bomford, K.C.I.F., M.D. Dated 1st January 1910.
Lieutenant Colonel Thomas Richard Mulroney, M.D. F.R.C.S. Dated 13th August 1909.
Lieutenant Colonel John Leopold Poynder Dated 12th December 1909.
Lieutenant Colonel William George Patrick Alpin Dated 6th January 1910.

CAPTAIN L. B. SCOTT, I.M.S. Civil Surgeon, Barisal District, is allowed one year's combined leave, and Captain C. A. Godson, I.M.S., acts for him.

DR R. S. ASHF is appointed temporarily as Civil Surgeon of Sylhet.

CAPTAIN J. W. MCCOY, I.M.S., Civil Surgeon of Sylhet, is granted 20 months' combined leave.

LIEUTENANT COLONEL R. S. WELF, I.M.S. Inspector General of Prisons, Eastern Bengal and Assam, has retired from 21st February 1910, and has been succeeded by Major B. Singh, I.M.S.

CAPTAIN R. WELLS, I.M.S., attached to the Kasauli Central Research Laboratory, is at present working out the etiology of dysentery in the Central Jail at Hazaribagh.

THE services of Captain J. M. A. Macmillan, M.B., F.R.C.S., I.M.S. are placed permanently at the disposal of the Hon'ble the Chief Commissioner of the Central Provinces.

THE services of Major H. J. K. Bamfield, I.M.S., are placed temporarily at the disposal of the Government of the Punjab for employment on plague duty.

THE services of the undermentioned officers are placed temporarily at the disposal of the Government of the United Provinces—

Captain J. K. S. Fleming, I.M.S.
Captain E. C. Hepper, I.M.S.

THE services of Captain P. L. O'Neill, I.M.S., are placed permanently at the disposal of the Government of Madras.

CAPTAIN D. MCCAY, M.B., I.M.S., Professor of Physiology, Medical College, Calcutta, is granted study leave for nine months, with furlough for three months in continuation, with effect from the 1st July 1910.

MAJOR C. DUFR, M.B., F.R.C.S., I.M.S., Civil Surgeon, Majmoo, is appointed to officiate as First Class Civil Surgeon, in place of Lieutenant Colonel A. O. Evans, I.M.S. on leave, with effect from the date of return from leave of Lieutenant Colonel T. W. Stewart, M.P., I.M.S.

MAJOR E. R. ROST, I.M.S. officiating Senior Civil Surgeon, Rangoon is appointed to officiate as First Class Civil Surgeon, in place of Lieutenant Colonel R. E. S. Davis, M.B., B.Ch., I.M.S., proceeding on leave.

UNDER the provisions of Articles 260, 303 (b) and 233 of the Civil Service Regulations, privilege leave to the extent due, combined with furlough so as to make up a total period of eight months, is granted to Major J. Penny, I.M.S., Civil Surgeon, Akjib, on account of ill health with effect from the date on which he was relieved by Lieutenant Colonel T. W. Stewart, M.B., I.M.S.

ON his return from leave Major N. P. O'Gorman Lalloi, M.B., D.P.H., I.M.S., is appointed to be Deputy Sanitary Commissioner, Burma.

UNDER the provisions of Articles 260, 303 (b) and 233 of the Civil Service Regulations, privilege leave to the extent due, combined with furlough so as to make up a total period of one year, is granted to Major P. Dee, M.B., I.M.S., Civil Surgeon, Bassein, on account of ill health, with effect from the date on which he availed himself of the privilege leave.

WITH effect from the date on which Major P. Dee, I.M.S., Civil Surgeon, Bassein, proceeded on leave, Second Class Military Assistant Surgeon W. C. McMillan held charge of the duties of the Civil Surgeon, Bassein, pending the arrival of Captain E. A. Walker, I.M.S., from Meiktila.

THE following appointments, postings and transfers are ordered in the Civil Medical Department, Burma—

Captain J. Husband, I.M.S., whose services have been placed temporarily at the disposal of this Government, to be Civil Surgeon, Meiktila, in place of Captain R. D. Sugol, I.M.S., transferred.

Captain R. D. Sugol, I.M.S., to be Civil Surgeon, Toungoo, in place of Major J. Enticam, I.M.S. transferred.

Major J. Enticam, I.M.S. to be Civil Surgeon, Moulmein, in place of Captain J. Good, I.M.S. transferred.

Captain J. Good, I.M.S., to officiate as Junior Civil Surgeon, Rangoon in place of Captain S. T. Crump, I.M.S., transferred.

Captain S. T. Crump, I.M.S., to be Civil Surgeon, Loi Mwe, Southern Shan States, in place of Captain R. D. MacGregor, I.M.S. transferred.

Second Class Military Assistant Surgeon E. A. Pischy, to be Civil Surgeon, Maubin, in place of First Class Military Assistant Surgeon E. J. Murphy, transferred.

First Class Military Assistant Surgeon E. J. Murphy to be Civil Surgeon, Monywa, in place of First Class Military Assistant Surgeon W. St. M. Hefferman, proceeding on leave.

MAJOR C. R. ELLIOT, R.A.M.C., is appointed Sanitary Officer, 3rd (Lahore) Division from 21st February 1910.

THE services of Assistant Surgeon F. H. Foy, Indian Subordinate Medical Department, have been placed at the disposal of the Director General, Indian Medical Service, for temporary civil employment in the Punjab.

CAPTAIN T S ROSS, I M S, Health Officer, Corporation of Madras, is under orders to proceed to Amritsar to go through a special course in malaria field work, under the direction of Captain S R Christophers, Assistant to the Director, Central Research Institute, Kasauli.

CAPTAIN A S LESLIE, M B, I M S, whose services have been placed temporarily at the disposal of the Burma Government is posted to duty at the Insein Central Jail.

CAPTAIN K G GHARPUREY, I M S, has been appointed to the substantive medical charge of the 5th Light Infantry, vice Captain R Steen, I M S, transferred permanently to the Civil Department.

CAPTAIN W D WRIGHT, I M S, has been appointed to the substantive medical charge of the 110th Mahratta Light Infantry, vice Captain L P Stephen, I M S, transferred permanently to the Civil Department.

THE Government of India have been pleased to approve of the extension for a further period of one year with effect from the 1st January 1910 of the sanction notified in India Army Order No 105 of 1907 to Messrs P Henderson and Company's steamers plying between Glasgow, Liverpool and Rangoon, with respect to officers travelling by such steamers being exempted from the penalty attached to overstaying their furlough or leave by reason of any delay in the arrival of the vessel in which they return to India, provided the steamer was timed to arrive within the period of such furlough or leave.

LIEUTENANT D O C MORPHY, I S M D, Superintendent, Central Jail, Rangoon, C P, has been granted three months' privilege leave.

CAPTAIN M WINDROSS, I S M D, Civil Surgeon, Bhaddar, has been granted six months' combined leave.

MILY ASST SURGN W W STUART, L R C P I, has been appointed to act as Civil Surgeon, Bhandara, C P.

MILY ASST SURGN F K HOLMES is appointed Assistant to the Civil Surgeon of Nagpur.

His Excellency the Governor of Bombay in Council is pleased to appoint the following officers to be Civil Surgeons of the first Class—

LIEUTENANT COLONEL W E JENNINGS, M D, D P H, I M S
LIEUTENANT COLONEL B B GRAYFOOT, M D, I M S
LIEUTENANT COLONEL J B SMITH, M B, M Ch, I M S
LIEUTENANT COLONEL C T HUDSON, M P C S, L R C P, I M S

MAJOR T JACKSON, M B, B S, I M S (Officiating)

MILITARY ASST SURGN F G CUTLER is appointed temporarily to the charge of the Central Jail, Jubbulpore.

CAPTAIN G P I GROUBE, I M S, has joined the Civil Medical Department, C P.

MAJOR V B BENNETT, M P, F R C S, I M S, has been granted eight months' combined leave.

CAPTAIN HALLILAY, I M S, has taken over charge of the Lyallpur District Jail from 25th January 1910.

MAJOR S B SMITH, I M S, Chief Plague Medical Officer, Punjab, has been permitted by His Majesty's Secretary of State for India to convert the period from 1st July 1909 to 13th January 1910 of the furlough granted to him in notification No 433, dated the 11th of May 1909, into Study leave.

THERAPEUTIC NOTES

MESSRS BUIROUCHS, WELLCOME & Co send us a specimen of the VAPOROLF brand Ammonium Chloride Inhaler a very compact and neat way of administering the neutral vapour of pure Ammonium Chloride. There is no rubber to get out of order in this hot climate, there are no cumbersome bottles to upset and spill. In fact, it is one of the most compact and simple inhalers we have now.

The Hoffman La Roche Chemical Works, Ltd of Idol Lane London, have sent us specimen of their THIOCOL, which contains 52 per cent of Guaiacol.

The following experiments done by Tavel at the BERNI Institute show what is claimed for this bactericidal preparation—

"Four series of rabbits, were infected with virulent Tuberculosis and submitted to treatment with 'Thiocol'.

Series I	Treatment began on the day of infection
II	" " four weeks after infection
III	" " three weeks before infection
IV	Treatment began three weeks before infection and was discontinued immediately after and was continued uninterruptedly after it

Series	Animals treated	Free from any sign of the	Scattered Foci	Died of Gen Tte
I	7	4	1	2
II	3	1	1	1
III	8	6	2	
IV	6	5	1	

All the control animals succumbed to advanced Pulmonary Tuberculosis.

Thiocol is given in solution in the form of tablets the average dose by 8 grains 3 or 4 times a day. In bronchitis and tuberculosis it is much used.

By the use of PIUTINOL a patient suffering from gouty or rheumatic conditions or from eczema can obtain a pure and sulphur bath. The wholesale agents are A & M ZIMMERMAN, Lloyds Avenue, London, E C.

ROCKLA a natural mineral tonic water, is strongly recommended by many medical men, the local agents are C H Booth & Co, Strand, Calcutta.

Notice

SCIENTIFIC Articles and Notes of interest to the Profession in India are solicited. Contributors of Original Articles will receive 25 Reprints gratis, if requested.

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to THE EDITOR, The Indian Medical Gazette, c/o Messrs Thacker, Spink & Co, Calcutta.

Communications for the Publishers relating to Subscriptions, Advertisements and Reprints should be addressed to THE PUBLISHERS, Messrs Thacker, Spink & Co, Calcutta.

Annual Subscriptions to "The Indian Medical Gazette," Rs 12, including postage, in India Rs 14, including postage, abroad.

BOOKS, REPORTS, &c, RECEIVED —

Ashton's Gynaecology New Ed, W B Saunders & Co
Hirst's Text Book of Obstetrics New Ed, W B Saunders & Co
The Cyclopedia of India Messrs Thacker, Spink & Co,
Hints on Prescription writing J Burnet, J Currie & Co, Works
Specialties
Analytical Notes Evans Sons, Lescher and Webb, Ltd
Studies in Leprosy (Nastin Treatment) Public Health Service U S A
A Practical Study of Malaria By Deaderick, W B Saunders
Onodi, on the Optic Nerve Baillière Tindall & Cox
Fifth Annual Report H Phipps Institute
R Vincent's the Nutrition of the Infant 3rd Ed Baillière Tindall & Cox
Gymnastics for Heart affections Hoffman (Engl Ed) Swan Souren
chain & Co, Ltd
Inspection Report on Dufferin Hospital
W T Prout's Hygiene in the Tropics J & D Churchill (Price 2s 6d)
Drummond's Elementary Physiology W B Drummond, Arnold & Co
(Price 2s 6d)
Catalogue of Library of I G, Civil Hospitals Bengal
Bulletin 57 Tubercle bacilli in blood (Public Health Service U S A)
Bulletin 52 Typhoid in Columbia (Public Health Service U S A)
Bulletin 55 Adrenalin (Public Health Service U S A)
Bulletin 54 The fixing power of Alkaloids (Public Health Service, U S A)
Bulletin 53 Toxicity of Antipyrine, &c (Public Health Service, U S A)
Civil Hospitals Bombay Report for 1908
Dr K S Malkani The Human Eye (Price As 8)

LETTERS, COMMUNICATIONS, &c, RECEIVED FROM —

Lt Col Wickham Hore, I M S Major R H Elliot, I M S Madras
Major L Rogers I M S Calcutta Lt Col Henry Smith, I M S
Amritsar Colonel W G King C R E, I M S, Insein Capt St J
Moses, I M S Purnea Lt Col Jennings, I M S, Bombay Capt R
McCarison, I M S Kashmir Lt Col Fischer I M S, Budron Major
W W Clemesha I M S, Calcutta Capt F C Mathews I M S Major
C C Barry I M S, Rangoon Major Fridmore I M S Rangoon Capt
McKenzie I M S Capt T Rutherford, I M S Capt Foster Kern
I M S Dr Wanless Miraj, Dr A G Newell Lahore Lt Col J
Adie I M S Amritsar Dr Murray Asana Capt I B Scott I M S
Dr A Hardy London Dr S Nandi Barrack pore

Original Articles.

THE TREATMENT OF SNAKE BITE CASES
WITH POTASSIUM PERMANGANATEBY W B BANNERMAN, M.D., D.Sc.,
LT COL, I.M.S.,*Director, Bombay Bacteriological Laboratory*

At the Bombay Medical Congress last year several papers were read on snake-bite and the treatment of snake-poisoning. In one of these papers printed at pages 250-251 of the *Transactions* recently published, we find discussed the advisability of using potassium permanganate as an antidote. After stating the well-known fact that this chemical will neutralise snake venom if mixed with it, and calling attention to the difficulty that Fayet had found in bringing the two substances into close contact in the tissues of the victim, the article proceeds as follows —

"Now it appears to me there is no difficulty in bringing the two substances into intimate relationship in the system if the permanganate is injected into the blood stream instead of into the tissues. As far as I am aware this has never been done, and I think that exhaustive experiments should be made on the lower animals with a view to determining the efficacy of this agent, administered in this fashion, and fixing a dose." Later in the same paper the author recommends "the intravenous injection of 350 cc of a 5 per cent solution of permanganate of potash" in cases of snake-poisoning in human beings.

It is against this procedure that I wish to warn the medical profession, and the urgency of the matter must be the excuse for the publication of uncompleted experiments.

In the course of carrying out certain experiments ordered by the Government of India, to test the value or otherwise of potassium permanganate as an antidote for snake venom, it was necessary to use the intravenous method of administration. As a preliminary a few control experiments were carried out to see if this salt was harmless when injected into the blood stream. As 350 cc of a 5 per cent solution was recommended for the treatment of a human case, it was thought that about 50 cc of a similar solution might safely be injected in the case of a dog of about twenty pounds weight. Accordingly a warmed solution of this strength was slowly injected into a vein of the hind leg of a dog weighing lbs 15. When ten cc had been introduced, however, the dog was gasping for breath and was dead in 75 seconds. *Post-mortem* examination revealed the cause of death to be intravascular clotting. Further experiments confirmed this trial, 5 cc being sufficient to cause death in 63 seconds.

Experiments with a solution of potassium permanganate of a strength of 0.5 per cent only did not cause such sudden death, but the result was just as certain. For instance, a dog of fifteen pounds weight, received 40 cc of a 0.5 per cent solution of potassium permanganate intravenously in the course of 4 minutes. Next day the leg was swollen and oedematous, but gradually became normal in size. The dog died, however, seven days after injection in a very wasted condition. The *post-mortem* examination revealed intense yellow discolouration of the whole of the tissues. The liver was lemon-yellow coloured and very friable, and reminded one of the appearances seen in acute phosphorus poisoning. The right lung was highly congested and hepatised-looking, though portions floated in water. Both kidneys highly congested.

Another dog to which 50 cc were administered intravenously was in 15 minutes attacked by violent colic, passing blood-stained mucus. The urine passed next day was dark brown and contained traces of manganese. The leg was very much swollen. The dog died on the second day.

The *post-mortem* examination showed congested lungs. Heart contained clots. Liver pale and mottled like a fatty liver and bile-stained. Kidneys enlarged and purple coloured, and much congested. The spleen was crepitant like a lung and several bubbles of air were noticed under the capsule. On section, air was easily expressed from the cut surface. As the carcass was perfectly fresh, this could not have been due to decomposition, but was probably caused by the liberation of oxygen from the potassium permanganate. The bladder was collapsed and contained several inky-black masses from the size of a pin-head to that of a small pea. The vein of the injected leg was thrombosed in its entire length, and about an inch of clot projected up into the vena cava.

After the above experiences he would be a bold person who tried such methods on man even in the attempt to save him from death from snake-bite.

The treatment of snake-bite by the local injection of a 5 per cent solution of potassium permanganate is likewise not a very promising method at least so far as our experiments have yet gone, for 10 cc produces local gangrene and extensive sloughing of the parts when injected under the skin of a dog's foot.

OPERATION ROOMS IN THE TROPICS

BY W G KING, C.I.E.,

COLONEL, I.M.S.,

Inspector General of Civil Hospitals, Burma

Beyond the simple fact that an operation room and its accessory rooms should be constructed on principles that will, the least, trammel the attainment of asepticism, it may safely be said that neither architects nor medical

men have yet arrived at any final conclusion as to their design or structure. I therefore purport to say, as little as possible as to matters open to controversy, and would simply state what I happen to consider to be the best arrangements and material for operation rooms in a tropical climate, with due regard to selected current opinions and their adaptability to the vital point of economy. It would be easy enough to make an operation room that would meet present day ideas, but it is not an easy matter to find a compromise between these ideals and what may be merely a want of appreciation of what is held to be a refinement on the part of lay officials holding the purse strings, or the actual presence of that well known inhibitive of progress termed "want of funds."

Position of an Operation Room—It must be so placed that it shall be (1) detached and unconnected from wards, (2) the light should be entirely obtained from the north, (3) surrounded by an area as free of dust as feasible.

The first point needs no explanation. As to the second, it may at once be granted that light admitted from the east and west yields a glare that, at certain hours of the day and certain parts of the room, tends to blind the operator and his assistants, so that the only matter open to discussion would be as to whether the light should not only be from the north, but also should be a roof light. It might be possible to urge in a European climate that a roof light offers advantage, but in a tropical climate, it is absolutely unsuitable, irrespective of the difficulties which at once beset the question of construction. Neither is there any manifest benefit in a modification of a roof light by extension of a north light window to the roof. In this case, if a full sized window be provided, any advantage to be gained by this addition can be secured only by the operation table being brought practically immediately below the roof extension of the window. Hence, I think, the best solution in a tropical climate is to get rid of the roof idea (of European origin) entirely, to trust solely to a north window of such careful construction that the area available for admission of light should be as little as feasible limited by its framework, and to meet the light angle question by having this single window of such height as shall bring it within 6 inches of the ceiling and 2 feet of the floor, and of such area as to almost include the whole breadth of the north wall of the room. Consequently, for five up country hospitals in Burma, I have had made by Messrs Henry Hope and Sons, Lionel Street, Birmingham, a polished British plate glass window, measuring 12 feet by 11½ feet in narrow mild steel frames, the lower glass panels being 6 feet 10½ inches by 2 feet 10½ inches and the upper 4 feet 4½ inches by 2 feet 10½ inches. The glass panels are as nearly as feasible flush with the frame, which is slightly curved to meet the glass surface. The central panel forms a casement which is capable of being opened by a lever, if natural, and not plenum ventilation be employed, or, there be a breakdown of machinery in the latter case. There is no joint puttying, and the whole structure is dust proof and weather tight.

In regard to the third of the conditions laid down above, there must be usually an adaptation to existing circumstances. Certainly the worst positions possible would be in close proximity to a road employed for public traffic. In this case, if an operation room must be so placed, the correct course is to supply it solely with filtered air. But even when such gross conditions are not found, it is still usually necessary to improve surroundings, so as to give freedom from dust. Various means will suggest themselves according to prevailing conditions. Thus, a cheap and effective method is to secure a belt of grass as broad as possible surrounding the building. This should be kept well watered and neatly mown. For communicating pathways and adjacent roads, any of the numerous present day "dust layers" ("tarmac," etc.), as used

on roads in Municipalities, may be employed, but in default of these patent remedies, if the operation room be equipped with kerosene oil gas, as stated subsequently to be desirable, the tarry waste products from the retort will be found to be an excellent dust layer, one application from which will give results for several weeks. This tarry matter can be applied in a single film as a fine spray, from an ordinary garden watering pot provided with small holes in the rose. If the products are not sufficient to cover the whole of the desired surface in one day, the material should be applied for the full breadth of the road systematically as the material becomes available in the intervals of gas manufacture, until the desired length is treated. To employ cement pointed stone slabs on concrete or cement plastered concrete, say, at least for 12 feet round the whole building, would be of advantage, but is not essential, if economy is requisite and grass covered ground is feasible.

The Materials used in Structure of Operation Rooms

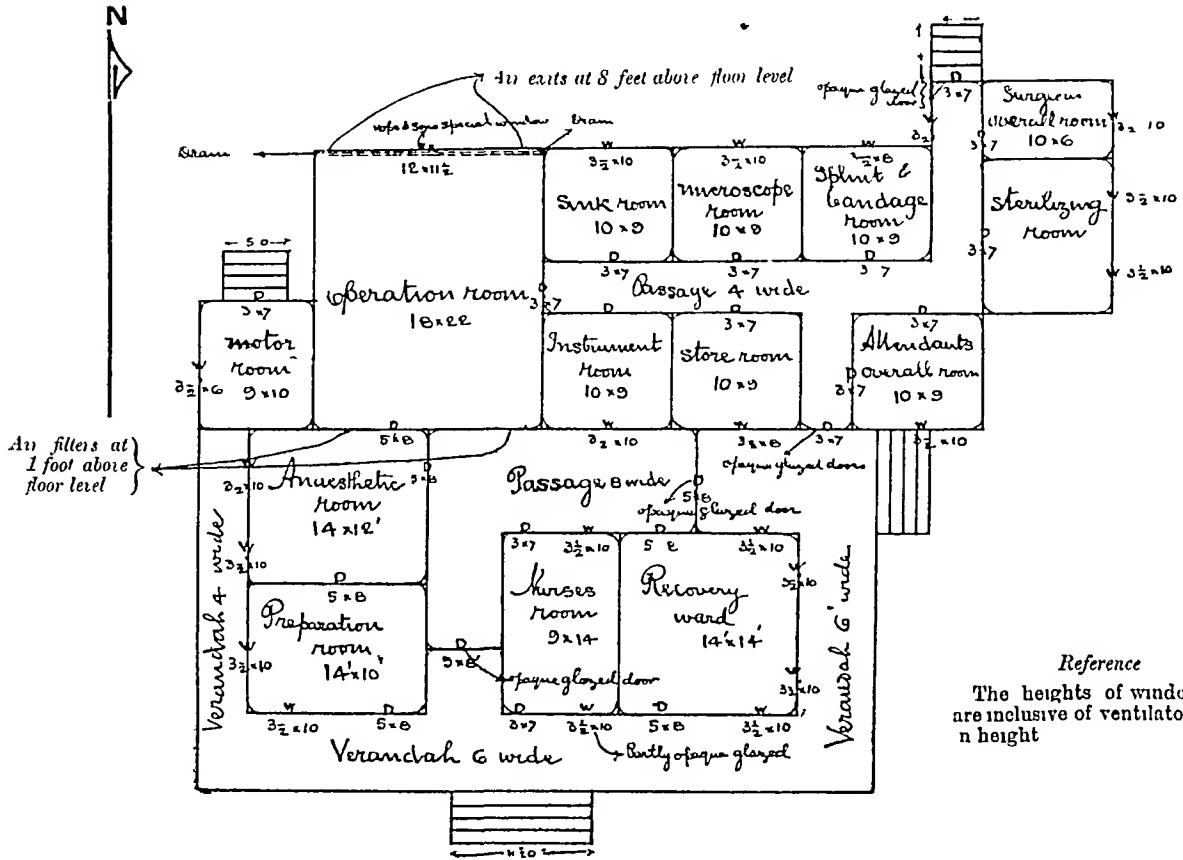
—The object subserved throughout the whole of the operation block is the exclusion of importable dirt, the making of such surfaces, especially in the interior, as by their imperviousness and avoidance of needles multiply shall not offer lodgment for dust, by their colour allow ready demonstration not concealment of dirt, and shall be capable of being readily and thoroughly cleansed. To obtain these ends, the chief characteristics of material employed should be that of imperviousness with smoothness of surfaces, with such adaptability that junctions, which necessarily involve spaces where dust can lodge, shall be absent or infrequent. Such requirements demand, in certain items of internal lining of structures, selection of material that happens to be usually intrinsically expensive, whilst, in any case, for the main structure, selection of material must be greatly trammelled by variation in cost as affected by geographical position, relation to trade centres, and adaptability in reference to local climatic conditions. Thus, it may well occur that in one place, brick or stone masonry would be the cheapest available material, yet in others an entirely wooden or brick nogging building would be necessary, or on account of cheapness, nothing better than a combination of bamboo matting and wood, or, iron and matting might be feasible. Obviously, these varying materials for the main structure would have to be adapted as to their interior surfaces by special means, and, later on, this will be discussed, but, keeping now to the question of the main building, an important point from an engineering aspect and, consequently, as to expenditure and adaptability to medical requirements, would be the nature of the roof and ceiling. By choice there should be no added ceiling, it would suffice that there should be used throughout cheap arched roofs such as first employed by Stoney in certain buildings in the Madras Railways. Thus, by preference, in respect to a hot climate, should be double and filled with non-conducting material such as charcoal, powdered mica or sawdust. But this latter ideal could rarely be economically reached, and as it is not essential, it can well be waived. By next choice, the roof should be on jack arches with a suspended reinforced ceiling, or the ordinary pent roof may be employed with a flat ceiling of reinforced concrete or ornate sheets.

In connection with the preference for curves, it might well be contended that it should dominate the whole shape of the room, it might be held it should be of a circular form, or that the northern and southern ends at least should be fully curved. Personally, I think, in following this theory to this extent, there is really nothing material to be gained, whilst expenditure is added to, not only as to the main structure but also as to the chief window (which forms such an important feature in the operation room) as well as door fittings, so that, I conceive, an operation room of a rectangular type with a flat ceiling provided with curves at the junction of the walls and of the walls with the floor and at all corners

OPERATION ROOMS IN THE TROPICS

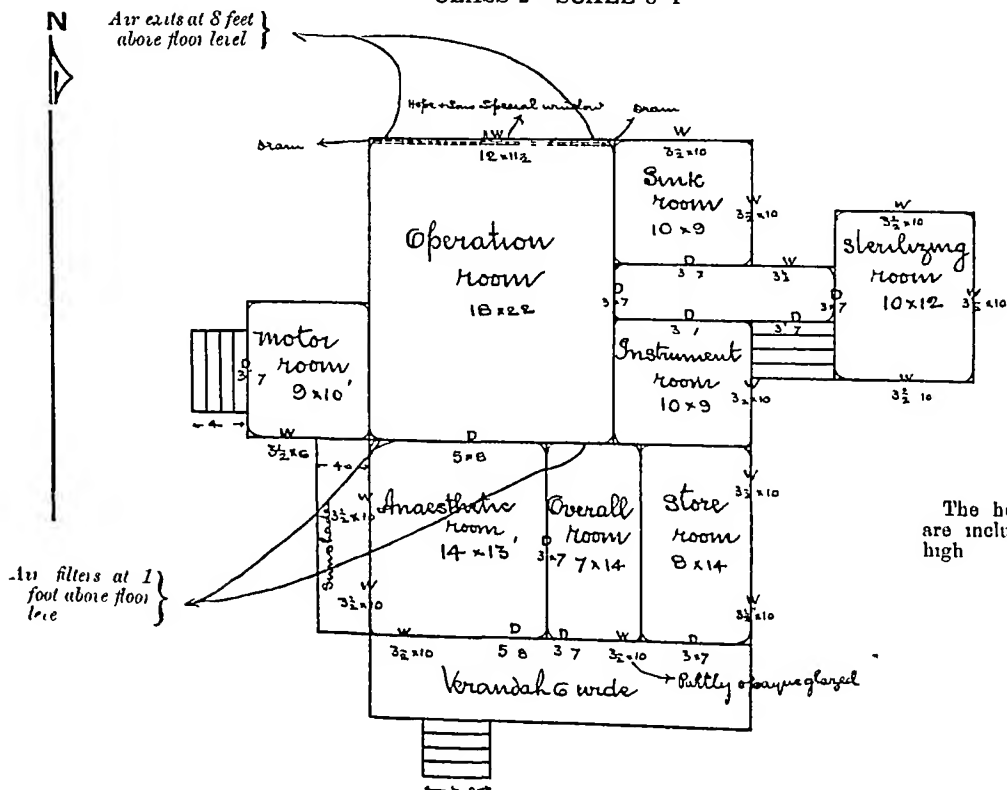
By COLONEL W. G. KING, C.I.F., I.M.S.,
Inspector-General of Civil Hospitals, Burma

CLASS 1—SCALE 8' 1"



Reference
The heights of windows given are inclusive of ventilators, 2 feet in height

CLASS 2—SCALE 8' 1"



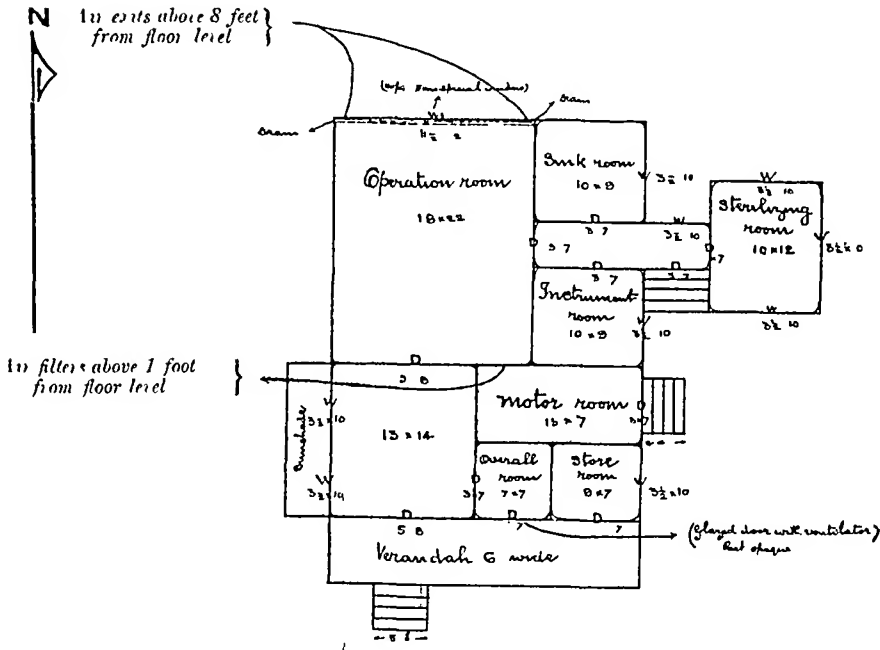
Reference
The heights of windows entered are inclusive of ventilators, 2 feet high

OPERATION ROOMS IN THE TROPICS

By COLONEL W G KING, C I F, I M S,

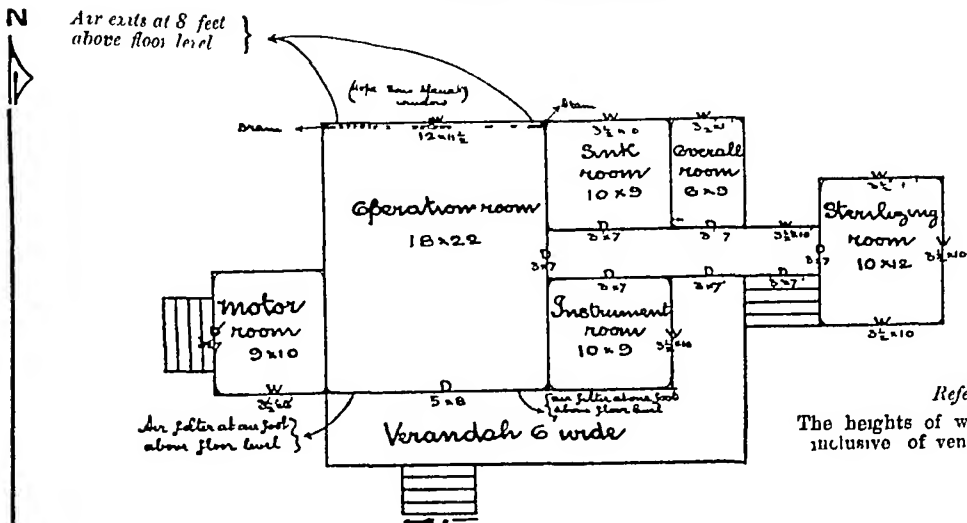
Inspector-General of Civil Hospitals, Burma

CLASS 3—SCALE 8' 1"



Reference
The heights of windows entered are inclusive of ventilators feet high

CLASS 4—SCALE 8' 1"

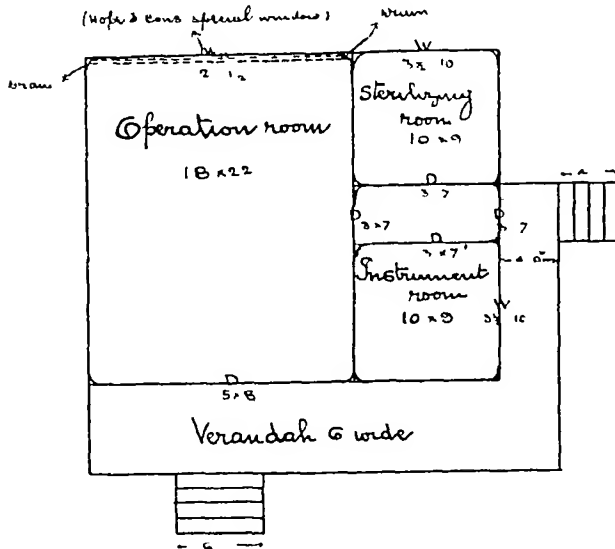


Reference
The heights of windows entered are inclusive of ventilators, 2 feet high

OPERATION ROOMS IN THE TROPICS

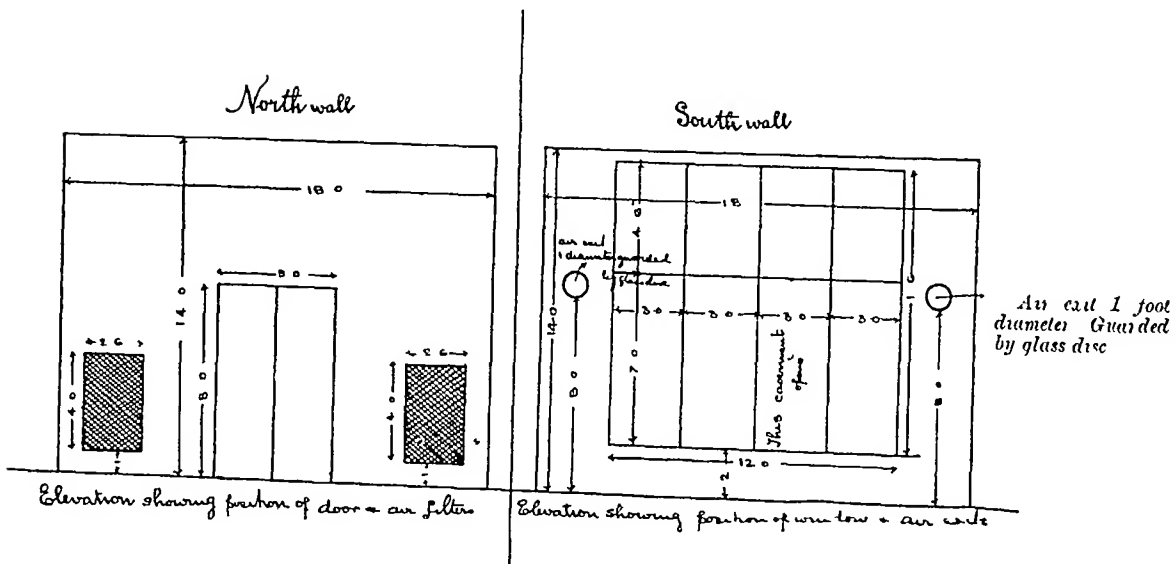
By COLONEL W G KING, C.I.F., I.M.S.,
Inspector General of Civil Hospitals, Burma

CLASS 5—SCALE 8' 1"



Reference
The heights of windows entered
are inclusive of ventilators
2 feet high

SCALE 4' 1"



fully meets all reasonable requirements. In modification of curved frontages, hexagonal or other many sided compromises are at times made, but if a correct window area is to be secured unnecessary angles are to be avoided (granting that they be filled in by forming curves in plaster work) the shape does not commend itself.

The Internal Surface of Operation Rooms—Personally, for treatment of the internal surface of masonry structures, I started with prejudice in favour of Portland cement plaster, but having regard to the trouble which constantly occurs in getting paint to take upon such surfaces until they are properly "ripe" which is always an indefinite period. I think it can well be done without, provided other reasonably smooth and impervious surfaces are produced. Of course, the prejudice in favour of cement is allied to the presumed necessity of swishing down the walls with antiseptics (formalin vapour being preferred by others), and the opinion that the cement would thus offer an advantage in resistance to penetration and retention of moisture, but, in the presence of excellent enamel paints now available in the market, such opinions may be safely modified. Keene's white cement being little known in this country and of apparently no striking advantage, the alternatives to cement plastering would be that the whole wall and ceiling should be lined with white glazed or Newelite glazed tiles, or squares of white marble, or reconstructed marble, or, that the tiles should be confined to the walls, and the ceiling should be treated with opalim or other glass. I do not think, however, that any of the methods mentioned present any real advantage over plain smooth lime plastered surface, provided it be correctly enamel painted, with, however, the saving clause that there should be a dado of not more than one foot in height from the floor level throughout the walls, preferably of squares of white marble, or, as an alternative, glazed earthenware or Newelite tiles. But in this detail, it must be remembered that the question of smooth lime plaster permits of no qualification, it should be absolutely smooth, and, for this purpose, nothing can be better than a finishing coat of polished shell lime and white of egg, such as used in the Madras Presidency, more especially, in old buildings when labour was cheaper. Where this method is not now practised, at least the smooth surface should be secured by a final coat of finely divided lime with a proportion of jaggery, rubbed with soft stone, so as to produce the necessary hard surface. What, then, should be the paints employed, in trust of which I would abandon the useful but troublesome Portland cement? Remembering that I cannot speak from personal experience, seeing that I have only just ordered the necessary experiments, I think that, direct above the lime plaster, there should be used a coating of silicate of potash (not the soda variety which is useful for distempering) usually known as water glass, and that above this should be placed the necessary coats of enamel paint. I believe, such a surface will secure the necessary imperviousness and also present no difficulty as to the first coat of paint above it. But if this suggestion does not prove efficient, I would still abide by the use of enamel paints without the use of preliminary water glass. I do not wish to make any comparison between the rival paints in the market, but personally, I have at present, a prejudice in favour of either "ripolin" or "sanlene." It is, however, worth remembering that whatever paint be chosen, it must not be put on as if it were so much white wash, which any coolie can apply. It should be attempted only by skilled men on absolutely smooth surfaces, as already stated, and be applied carefully over such undercoating as may be advised by the patentees of the material selected. As to colour it is at times suggested that grey or green tints should be employed on the ground of glare in the presence of white, but there is no glare with a correctly used north light and adherence to white in the interest of detection of dust is consistent and advisable.

As regards the flooring, necessarily the same rule as to imperviousness and capability of being kept clean, must apply. A correctly constructed, caulked, tongued and grooved, or, parquet tank floor if kept scrupulously clean and paraffine waxed in the absence of anything better is not to be despised, but is certainly far from ideal. The material largely used in Europe is white marble "terrazzo," that is, marble chips placed in cement according to a set pattern, or what is the same thing, as regards utility, "mischiat," where the material is put in promiscuously and worked to a smooth surface. If supervision of devoted nature is available, such a surface would make an excellent floor, but it must be remembered that not only cements vary in quality with the contractor's honesty, but the understanding of the principles which guide their use (often in direct contact with lime) are rarely attended to by workmen in practice. The consequence is that such floors are liable to crack. White glazed flooring tiles offer the next possibility, but have the disadvantage brittleness and frequent joints. On the whole, therefore, I think the best floor is made by selected white marble slabs of the largest uniform area usually procurable laid on cement over concrete. Such a floor compares well with the cost of other suitable material available in any part of India, if procured from certain firms in Calcutta.

This description of the internal surfaces of an operation room would suffice when treating of masonry structures, but when a wooden or brick-nogging building is dealt with, a difficulty arises as to frequent joints. Here, I have found in practice, an excellent lining is secured by fixing on the framework eternit sheets of 8 feet by 3 feet, carefully putty jointed, and finally enamel painted throughout. This material may be employed also for the ceiling. If the work be carefully executed, the result is a uniformly smooth and impervious lining. There are other forms of this material in the market known as uralite, fibro-cement sheets, asbestone, etc., etc., which have the same properties, but it must be remembered that in making a selection that what is required is that the "compressed" variety should be used, presenting at least on one side an absolutely smooth and hard surface. Instead of using these materials, a wooden building can be lined efficiently with reinforced plaster, that is, cheap wire netting ($\frac{3}{8}$ inch by $\frac{1}{2}$ inch) is fixed to the frame work—not the more expensive expanded metal—over which lime or cement plaster mixed with fibre is used, so as to secure a result much as in the case of lath and plaster work employed in European houses. This presupposes that the plaster walls will be treated subsequently, as stated above with white enamel paint. The lower 3 feet can be protected by tiles placed direct upon cement over the reinforced plaster. In a wooden building where the operation room is on the first floor, there is nothing to prevent the floor being made of reinforced concrete with marble tiles laid on it as has been actually executed in two instances in Burma.

If financial reasons press, a bamboo mat building is a feasible though undesirable structure, but it would be necessary to see the work was of a good class, that is, the bamboo mats should be thick and be correctly stretched on sound square cut wooden frames, not merely supported on split bamboos, or as actually carried out at my suggestion for temporary isolation sheds in jails in Madras on a masonry plinth the framework might be of iron with stretched wire netting throughout upon which the bamboo matting can be stitched so as to make it stiff, that is, practically, the bamboo matting is reinforced. Having made such a building with a pent roof of tiles or corrugated iron, the best lining would be the eternit sheeting for ceiling and walls as above described.

Accessory rooms—Except under the very meanest of circumstances, it is necessary to add to an operation room, accessory rooms—making a combination which is

familiarly known as an "operation room block" In regard to construction, *ceteris paribus* what has been said of the operation room is true of the accessory rooms, except that in the sterilizing and sink rooms, the dado of tiles or marble, instead of being confined to one foot from the floor, should be at least four feet six inches high

The number of accessory rooms must depend largely upon the class of hospital and the extent of operative work expected, indeed, not only the number of accessory rooms, but also of operation rooms in a hospital, must be determined by like considerations. Thus certainly, wherever it can be afforded, there at least should be besides one general operation room, one septic operation room. In large hospitals, these will need to be supplemented by special operation rooms for the eye, gynaecology, ear and throat, etc., etc. It would hence be impossible to lay down a rule as to the number of operation rooms required or the number of accessory rooms. All that can be done is to indicate what these rooms should be, and point to the inconvenience which must result in their absence, and expect this to be balanced against local financial appreciation of medical requirements.

No operation room should have a single fixture in it. Several modern authorities in adhering to this rule make an exception in favour of a lavatory basin for the surgeon, but I see no reason for this. The surgeon can have as many basins as he chooses supplied on suitable moveable aseptic tables placed conveniently near him within the operation room, and have them removed as often as necessary. If this principle be adhered to, there must exist a special sink room, and, as no cabinets containing instruments can be allowed in the operation room, it follows there must be an instrument room, so that an operation room with an instrument and sink room attached represent the smallest feasible type of operation room—it being understood that, with this minimum provision sterilization will take place in the sink room. Both these rooms should be quickly accessible, and as doors must not be multiplied in the operation room if dust lodgment is to be avoided, they must immediately adjoin in the operation room. But, if a nervous patient is not to be scared by the inadvertent exhibition of instruments in the operation room (and thus unnecessary disturbance of cardiac action be brought about) it is well that the anæsthetic be given in a special room. The room would, in any case, be essential where a succession of operations is expected. But, in the present day, important details as to aseptic preparation of the patient must be perfected just before entry to the operation room, for which the ward is not a desirable place. Hence there should be a preparation room, and as after the operation a patient may be so collapsed that removal to a ward would endanger his life a recovery ward attached to the block also would be desirable. On the other hand, the anæsthetic room, where finances are difficult of extraction or the class of hospital dictates, may be both the preparation and the recovery ward, as required by varying circumstances. Again, there is necessity for a small microscope room where a fragment of a material may be examined as to its nature whilst an operation is proceeding, and thus the surgeon be aided in arriving at a determination as to his methods. Then there is the important matter of sterilization to be attended to, special arrangements of some sort must exist, respectively, for sterilization of instruments, dressings, surgeons' and attendants' operation clothing, and antiseptic treatment of their persons. In a large hospital with several operation rooms, sterilization is best conducted at a central station where steam can be supplied under pressure, as part of a central heating system (as will be the case in the New General Hospital, Rangoon) or, in absence of such a system where steam is generated under pressure on the spot. Material from this central station could necessarily be conveyed in any of the forms of sterilizing drums, and be stored unopened for

use in the operation block. But, even in the presence of such arrangements, it would not be advisable to forget the possible necessity of sterilizing certain articles to the satisfaction of the surgeon concerned on the spot for which, however, comparatively small apparatus would be required. In small hospitals where central heating stations are not feasible, a necessary part of an operation block would be a room for sterilization of instruments and materials, and one but preferably more, so called "overall rooms" for disinfection of the person of the surgeon and his assistants. In a block where only one overall room can be afforded, all attendants liable to handle any matter must be required to use special lavatory basins in the sterilizing room, leaving the overall room private for the surgeon. A nurse's room would be a reasonable adjunct as well as a stranger's overall room, if there be anticipated many visitors or students to view operations. Even this list, however, does not exhaust the accessory rooms for which a useful scope exists. The instrument room should not be larger than would contain such collection of instruments as might be thought would ordinarily be necessary. But it ought not to be required that an apparatus or instrument store in a distant part of the hospital should ever be in requisition for emergencies; hence, there should be a store for unsterilized instruments which may be in addition to or, combined with, a splint and bandage store. If artificial ventilation is employed for the operation room, a special motor room would also find a place in the block.

Having regard to the various details enumerated above, in the accompanying diagrams showing types of operation rooms, I have classified the blocks on a descending scale according to possible requirements, but, I would state that in a large hospital it would be economical to arrange operation rooms in pairs, so as to allow certain of the accessory rooms being used in common.

Dimensions of rooms—In the diagrams, the minimum size of rooms and passages held to be feasible is shown. The sterilizing room especially will be found uncomfortably small in practice. The floor area of the operation room is necessarily an important point. On this subject, the most varied opinions exist. Thus, it is evident that where students are admitted a larger area would be required than where this is not the case, although, owing to the multiplication of operation rooms in large hospitals under modern conditions, individually, the size is not such as intended to accommodate a large number of students in any particular one. Necessarily, the size of the room must have a relation to air purity, and whether artificial or natural ventilation is depended upon. It is a phrase that has "caught on" of late that the modern operation room should be small, because it can be easily kept clean, but if persons who lightly use this phraseology ever took the trouble to distinguish between the amount of labour necessary as to what may be regarded as average, large and what may be regarded as average small, operation rooms, it would be seen that the difference of area is not so great as to be worthy of the prominence which has been given to this view. The point is unfortunately one which can be appealed to by the economical hymn, and the fact is consequently worth expatiating upon at peril of lengthening this communication. Obviously, where plenum, or plenum aided by extract, ventilation is used—the combination being the better method—the question of size of operation room really resolves itself into a matter of operative convenience, the velocity with which air change is made in respect to the temperature of the air, and the degree to which the air in motion is perceptible. Where students are accommodated, and artificial ventilation is employed, it is possible to arrange that the current of air shall pass over the area used for operations—the "working area"—in all purity in the first place, and that, presumably, healthy students shall not only receive it, in part, second-hand, but by

reason of their numbers be afforded a less share, with out detriment to the patient and the select few in the working area. Hence, a modern method of using plenum ventilation in a theatre is to place students behind a glass screen at least seven feet high (as an impediment to diffusion of dust, and material from the human air passages) over which the plenum current under pressure can penetrate towards its exit—where it may be aided in velocity and direction by an extract fan—behind the group of students. The arrangement necessarily secures great economy of total area. Hence, if areas of operation rooms intended for students and without such accommodation be contrasted, it might well occur to a layman intent upon curbing medical demands that the normal size of an operation room could be determined by taking the total possible inmates (including students) of, say, an important operation room in Europe, and securing therefrom a standard area—oblivious as to whether artificial ventilation be employed or not, or, the small “working area” of such an operation room may be selected as the total actually necessary for an operation room where students are not intended to be—oblivious of the fact that under plenum ventilation the total air change in this special part of such a theatre may have been six to ten times per hour, against three per hour likely to occur in natural ventilation. In short, whilst with artificial ventilation, it may be possible, as it is in the case of the man in a diving dress, to supply a sufficient amount of air in an exceedingly small area, by increasing the velocity of delivery, I hold that the basis of calculation of size of an operation room should be the keeping the air contents within the standard of the “permissible limit of impurity,” and remembering that even with artificial ventilation, it is always within the bounds of possibility that the machinery employed may be temporarily out of order, and that natural ventilation may, therefore, in the midst of an operation, have to be trusted to. These are principles that I have steadfastly advocated in Burma, and I am glad to see that, in a recent number of the *Hospital* there is a similar independent pronouncement by Mr Keith Young of the well known firm of Messrs Keith Young and Hall Architects, Westminster, London. Literally interpreted, this basis would demand a space of a thousand cubic feet per head with an air change of three times per hour. In the face of varying opinions, as to the height above which air contents of a room may be regarded as not usable (namely, 12 feet, according to some, and 15 feet, according to others as an extreme) it is a matter of opinion, in the absence of clearly worked out facts, how far economy may be sought by giving height to the building in place of square space. My favourite height for computation of usable air space is the compromise of 13½ feet, and whilst I regard space above this (up to 18 feet, largely as a matter of comfort in a tropical climate in reference to radiation from a hot ceiling or roof, I assume no serious error is committed if the total height of an operation be settled at 14 feet. If, then, it be reckoned that the usual number of persons, in a room at an important operation be five, I find a convenient area is 18 feet by 22 feet which gives 79.2 sq ft (say, 80 sq ft) per head, with a cubic space of 1109. This seems to me to afford a sufficient regard to economy, and yet secure a reasonable approach to air purity, operative convenience, and the demand for small areas in the interests of maintenance of cleanliness. I have compared the area thus arrived at (396 sq ft) with that of thirteen operation theatres in hospitals in Great Britain having medical schools attached, and find that they have an average area of 538 sq ft and that of these ten are artificially ventilated, whilst three of the most recently built operation rooms in India with medical schools attached give an average of 649 sq ft. Again, in fourteen operation rooms, in various countries, with natural ventilation and without medical schools, the average square area is 485 feet.

The artificial lighting of operation rooms—Many a difficult operation has been performed “with the lantern dimly burning,” but that is no reason why either the patient should be subjected in urgent operations at night time to the risk, or the operator to the anxiety, of the work being undertaken with different lights. If nothing better than oil lights can be afforded, petrol lamps or kerosene “sun light lamps” or billiard lamps calculated not to throw shadow and to yield a good light somewhat to the side and above the operator, must be selected, but from experience in its use both in Madras, in laboratories, and in Burma, in operation rooms and laboratories I regard the use of Mansfield and Sons’ (No 2, New China Bazaar Street, Calcutta) kerosene oil gas as a most useful and desirable addition to an operation block. In large towns, the use of the electric light may be preferred by some, and if two independent sources are available or accumulators are on the spot as a necessary provision against possible interruptions, there is afforded a cleanly and brilliant light. But so far as the latter aspect is concerned, there is little to choose in the presence of mantles (and delivery under pressure if desired) between electricity and gas whilst with the latter moderation of brilliancy is better under control. But, irrespective of effective lighting at night time, gas affords a rapidly available agent for heating for sterilizing purposes, and as, practically, all large apparatus is made for use of coal gas in the European markets (electric heating being in its infancy and wasteful of power) no change is necessary, except that the burners should be modified by Mansfield to suit kerosene gas. Having once established gas plant for sterilizing purposes and lighting of operation rooms, it becomes a cheap matter to extend lighting to the hospital concerned and for clinical laboratories, as well as for ward kitchens for special warming of “extras” night and day at the option of the nurse. In hill climates, individual rooms can be quickly and cheaply warmed by the use of this gas allied to the low pressure hot water system. Moreover, by the use of very small gas engines which are cheap, cleanly and easily managed, it is possible to get power for driving Blackman’s or other ventilating fans for plenum or extract ventilation, and, again, with a larger but still cheap engine, it is possible to get power for the driving of a dynamo, and thus have available a source for X ray and electro-therapeutic work in the hospital. Where water supply is had from a well, or, being from other sources, requires purification, it becomes a cheap matter to use Cherry and Wade’s centrifugal pumps worked by the same engine for supply of storage cisterns and distribution thence, instead of trusting to manual or bullock power. Examples of all these methods of adaptation either exist or are in process of being carried out in Burma, at the present time, in connection with up country hospitals. In the New General Hospital, Rangoon, as both hot water and steam are available in the buildings at all necessary places, electricity from two sources alone is trusted to for lighting, plenum and extract ventilation, power for punkahs, lifts, etc., and minor cooking in ward kitchen. But, personally, I am of opinion that, even with this rich supply of electricity, it will be found ultimately necessary to have a small gas plant for laboratories, clinical rooms and ward kitchens. For smaller types of hospitals, then, I consider the combination of gas for operation rooms and hospital use is decidedly economical, if ordinary care be taken to see that the gas producers are kept thoroughly clean and none but the coarsest of kerosene oil is employed for gas making. Provided there be at disposal a skilled electrical and general mechanic, who can, from time to time, be detached from a large hospital or head quarters of the Province (as is the case in Rangoon) to rectify occasional defects, it suffices to keep at each up country hospital, for care of gas supply and engines, a cooly of the class that would be employed as assistant to a fitter, so that the establishment necessary is absolutely cheap.

Air purification—When air purification is undertaken in Europe, complicated methods of passing air through metallic screens, coke screens, and cheese cloths, and the use of water sprays for washing the air, are freely employed and, after such treatment, it may be subjected to warming, and is then delivered under pressure to the operation room, or screening may be used as a preliminary and, finally, the air may be delivered through cotton wool air filters which are formed simply by loose packing of cotton wool between two layers of wide wire mesh, so arranged that the whole filter can be readily removed for renewal from time to time. The washing and screens seem to me reasonably sound for treating air charged with the smoke of European manufacturing cities, but must be unnecessary in most places in the tropics, and certainly in Lower Burma, no one desires to ascertain whether air can carry more moisture than it does at existing temperature. At the most, it might be desirable to pass the air through varying grades of mesh wire screens to get rid of dust, before arrival of the air at the cotton filter. In the simple form such as used in three hospitals in Burma, the air is merely drawn direct down a shaft placed above the roof, duly protected from birds, and is then discharged by the fan through a pipe to the cotton filter, which is seen exposed on the face of the south wall of the operation room in the diagrams. As a basis for calculation of the area, I have used Haldane's results for the "House of Commons," which show that a cotton filter six inches thick may be required to pass air through it, at the rate of 1'00 cubic feet per square foot of area per hour.

Ventilation of operation rooms—If my diagrams be looked at, critics may be scandalized at finding that if natural ventilation is to be trusted to, there is no apparent inlet or exit for air except by the opening of the casement, as stated above in describing the north window. As a fact, seeing that the area of the opening thus made is 7 feet by 3 feet, it should suffice, although I grant exit and entrance air might quarrel about their respective spheres within this total area. But, in explanation, I would state that where only natural ventilation is employed in these operation rooms it suffices that the door and window passage to the accessory rooms be open and if the rooms which are at its sides are kept shut, there is a direct and cleanly entrance of fresh air—with time to deposit dust on the way. This indirect way I conceive to be better than multiplying windows and openings in the operation room wall, as this passage at least must exist. Where plenum ventilation is employed with electric power, adjuvant extraction might be used. But, if a gas engine be used a single plenum centrifugal fan should be trusted to. In this case, as in three of the new operation rooms in up country hospitals in Burma, I would allow entrance of filtered air at the sites marked in the diagrams with exit holes at 8 feet above floor level. This mode is somewhat heterodox, as it is freely taught that in operation rooms, plenum ventilation should be introduced above the level of the inmates' heads and that the extract should be at the floor level, the idea being that dust and microbes will be dragged downwards instead of being stirred upwards. I, however, think, having regard to the known level of the patient and the precautions taken against dust on an operation room floor and the persons of the operating staff, it is better to leave such questions to gravitation in a little disturbed atmosphere, and to direct a gently moving current, under slight pressure, diagonally upwards from one end of the room to the other and at an angle that would give the patient and staff the full benefit of the incoming air, without dragging downwards on the patient the microbes from the respiratory tracts and other parts of the person of the operator.

Without entering into refinements of calculation as to velocity of fan, its theoretical size, etc., etc., I may say it is safe to assume that a Blackman's fan of 14"

diameter will, at least deliver 500 cubic feet per minute, and that working badly, it would deliver 260 cubic feet per minute. Hence, in the operation room which is estimated to contain five people, I have allowed two filter areas of 10 square feet (2½ feet by 4 feet) each, so that, disregarding the decrease of velocity at exit from the filter resulting from friction through the cotton, it is safe to assume that at the outlets from the room, when the fan is working well, the rate would be at 3 feet per second, and would allow of some possible surplus for pressure in the room as advisable in plenum ventilation, and consequently that two circular areas (of one foot diameter each) guarded, when not in use, by Messrs. Comis Ching and Co's (London) glass discs movable on central screws, would suffice, and that in practice the total room contents should be very much oftener changed than the minimum rate of three times per hour at 2,000 cubic feet per head. The uncertain factor is, of course, the obstruction caused by the variable compression of the cotton filter, and hence the necessity for the somewhat loose data and the wide margin I have indicated. Thus, the compression which occurs in the 6" thick cotton filter, as required by Haldane, has been found more than desirable and hence, a 2" thickness is now employed in Burma. I do not suppose that the air thus delivered is microbe free, but I believe that a great diminution must occur, and that, at least, the air is reasonably dust free. In this matter, I think, the statement made in a recent work on the St. George's Hospital, Hamburg (which I quote below in italics), represents a reasonable view of the matter, and I would remind the reader that I do not regard air filtration as a necessity in operation rooms except when obviously exposed to dust from roads and the like. At St. George's Hospital, Hamburg, instead of a cotton filter, a sand and gravel filter similar to that employed for water filtration is said to have given excellent results. The arrangement is described as follows—

"The air is taken in from a carefully selected place in the garden, and passes through a birdnet with large meshes into an ante-room, thence, through a filter about 50 cm high and measuring several square metres of fine broken coke into a special small room, where it passes over a heating surface in winter and over ice in summer.

"The air which has thus been tempered and cleansed of its large impurities, is then forced through pipes with the help of a noiseless fan of special construction, driven by an electric motor (built to develop a strong pressure) into a large iron tank. The sand filter rests on a sieve with large meshes, about 20 cm from the bottom within this tank.

"This filter is built up of stones, gravel and sand, the size of which decreases upwards where there is a layer of 0.281 mm sized grains of sand which has area of about 2 square metres. The height of the layer of sand is about 60 cm.

"As soon as the sand becomes clogged, about 12 cm may be removed from the top. Even if the layer is only 20 cm thick the filtered air will remain free from bacteria. The air thus forced through the sand filter is brought by means of pipes to the operation theatre. The pipes are partly made of linoleum in order to prevent all noise as far as possible. The switch for the electric motor is fixed in a box buried in the wall of the operation theatre, closed with a glass door, and thus the motor can be started or stopped any time from the operation theatre. The air thus filtered is allowed to become compressed in the operation theatre in such a manner, that an immediate escape of used air ensues, when the door is opened. At the same time no unclean air can enter the room. To create this quantity of compressed air in the operation theatre, it is, therefore, necessary to keep all air channels, which ordinarily allow used air to escape, tightly closed. We do not confess to be able to make the air absolutely free of all bacteria but we are doing our best to make it as free as possible."

In the matter of velocity of currents, it is necessary that those using an operation room protected by air filtration in India, should be distinctly warned that the intention of the arrangements is by no means to supply them with a velocity of air that will imitate the action of a punkah—purity of air and its dust free condition alone being held in view by selection of economical methods. If cool air is required, adjuncts must be employed. A further necessary warning is that if the room has been kept closed for a long time before an operation, it is advisable that air change be ensured by opening the exits and turning on the air current about twenty minutes before commencing an operation.

Heating and cooling—It is, of course, possible in the hills and in certain seasons on the plains, warming of an operation room would be of advantage in the interest of the patient. Where gas is available, this can easily be arranged by placing radiators on the low pressure hot water system within a small compartment of the air system so that the current can pass over it before passing through the filter. The apparatus for this could very cheaply be added to the small motor house shown in the diagrams. On the other hand, cooling is frequently necessary in the interests of the operation staff and perhaps, at times in those of a patient. To, however, attempt to maintain a room at a definite temperature implies an estimate of local humidity and local range of temperatures, the nature of surfaces made of isolation, and other necessary points, and certainly could not be carried out accurately without considerable expenditure and a good class of machinery. But a degree of comfort might at times be secured without it being possible to say that the temperature of the room did not fluctuate within certain bounds, by an imitation of the radiator principle by use of a small trough in the motor house to contain ice surrounding a coil of pipes containing a solution of chloride of calcium, so extended as to pass into a closed expansion of the air delivery shaft on the delivery side of the fan, as in the case of the heating system advised. It would, however, be necessary to arrange for the collection and removal of moisture deposited on the tubes exposed to the air current, and this possibly could be managed by using a visible glass gauge to ascertain the extent of accumulation and the application of a hand pump to a receptacle. This being a mere make shift method, where electricity is not available for use of a small motor and pump, it would be an easy matter to cause at least occasional displacement and circulation of the fluid in the pipes by a hand pump during the period operations were actually progressing, and for a short time anterior to this.

Doors and Windows—In the operation room, the number of entrances by doors should be limited as far as possible. Thus, in the diagrams, there are never more than two doors. But it is open to opinion whether in diagram No 1, there should be an additional exit door allowing access to the recovery ward without passing through the anaesthetic room. In the smaller types, such precautions are not necessary and the two doors suffice. The entrance door should necessarily be of a size that will admit a stretcher trolley or stretchers, and this may be taken at the minimum at 4'—6' and would be better at 6'. In the diagram 5' is shown. The doors should be absolutely flush with the walls and should be devoid of all panels so as to present a surface on which no dust can collect and bevelled at the edges so as to favour an tightness. In the case of the entrance door, to secure the surface being flush with the wall it is well to use large double hinges. In regard to windows, the special operation window has already been described in connection with lighting. It of course should also be arranged that the frame is absolutely flush with the wall. In the accessory rooms, the window area is purposely large to admit of full light in the interests of prevention of dirt. Here, they should be flush with the walls, and each pane of glass should be large so as to avoid unnecessary ridges for lodgment of dust. If

privacy is necessary the lower parts of the glazed windows should be opaque. Over each window is a separate ventilator of 2' x 3' allowing the window to be closed if there be unusual dust at time of use. As the area of the rooms is small, double hinges are advisable to enable windows to be turned outwards. When operations are not being conducted it is essential that all accessory rooms should be reached by means of a distinct common entrance without passing through the operation room.

Water supply—The water should be from the purest source available. In the absence of a public system under good pressure, it may be desirable to force the supply through a Doulton's candle filter to a special storage cistern for the operation room block. Thence the water should pass to taps in the sink, overall and sterilizing rooms. In the sink room, there should be a gas heated water heater giving, say, two gallons a minute of hot water, or all sinks and lavatory basins may be supplied from a low pressure hot water cylinder as supplied by Richardson and Cruddas. This may be retained in the motor or other conveniently adjoining room. In the sterilizing room, there should be a water sterilizing apparatus, preferably of the pattern used by Arnold and Kny Scheerer, in which the water passes through a filtering candle to a cylinder, where it is raised to the desired temperature or sterilized under pressure, and in the other, can be sterilized and subsequently cooled by means of a worm enabling cold water to be circulated through the sterilized mass to any temperature required.

Drainage—Sink and lavatory basins should discharge by straight open waste pipes direct to white glazed channels, or white marble channels to exits in the open air over traps or otherwise. There is no necessity to make the drainage of the operation room a large question. It is not infrequent to find an operation room treated on the principle of a slaughter house, that is, on at least three sides a huge drain is placed. A matter of fact, if the attendants take ordinary care, it should be rarely that any foul matter reaches a floor during an operation and, barring the removal of such defilement, the treatment of the surface consists of the use of antiseptics which can be directed as required by means of squeezees, so that there is no real necessity to slope an operation room floor, especially in the junction of the walls with the floor have been properly curved. At any suitable point, the floor washings could be directed towards a small untrapped opening guarded by a movable screw metal plug delivering over a trap in the open air. At the most, there need be a 3" marble drain similarly guarded below the window. I see no advantage in the modern floor trap.

THE INDIAN OCULIST, HIS EQUIPMENT AND METHODS

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In the *Indian Medical Gazette* for March, I was much interested in the article on this subject under the heading of "Couchers and their Methods," and especially the details to which Major Elliott made reference in his notes at the end of the article in question. As being, so far as I am aware, the first to study their methods intimately in comparison with our Western ideas, and bring such in detail to the notice of the profession in a paper read before the Ophthalmological Society of the United Kingdom so far back as 1896 (*vide Transactions of the Ophthalmological Society*

of United Kingdom 1897), I hope I may be pardoned for placing again on record some other features of the technique as practised by these men, for whom in many instances to my mind the term "Charlatan" is hardly too strong as any one, who will do me the honour of perusing the above article, will readily, I think, admit.

Having seen a large number of eyes, whose sight had been destroyed from various causes directly resulting from the operation as practised by the "Suttrah" in a district in Upper India where I was once Civil Surgeon and where "Suttrahs" abounded, I took a great deal of trouble in running to earth (with the aid of their victims whose sympathy I enlisted in this matter) a good number of these men, and succeeded in obtaining from them on payment complete sets of their equipment (instruments, &c.) Three complete sets of these were presented by me years ago to the museums respectively of (1) Ophthalmological Society of United Kingdom, (2) Royal College of Surgeons of England, (3) Royal College of Surgeons of Edinburgh, together with a complete description of same and their use, and can be seen by any one interested in this subject.

My experience of the professional couchers ranges from the United Provinces and Rajputana down to Mysore, of the presidencies of Madras and Bombay actually I have no experience personally, but in the first mentioned large tracts, these men are chiefly Hindus and drawn from members of the Kayasth caste, which is well-known for its astuteness and general education, I mean taken as a class in India, though occasionally one comes across a Mohammedan, but this is, in my experience, comparatively rarely. The craft is hereditary and handed down from father to son, there does not appear to be any literature amongst them on this subject, for I have frequently, and in vain, tried to get hold of such, and am told that such does not exist to any appreciable extent, the technique of the operation of couching being taught to each individual as necessity arises. One interesting and rather extraordinary fact is the advanced age of some of these men, in one instance I personally made the acquaintance of a "Suttrah" in active and actual practice said to be over 80, and he certainly looked it, and it was one of this old gentleman's victims who sought my aid, suffering from panophthalmitis, which originally started me on this enquiry, and subsequently led me to find out all about them. Medical Officers in India would be surprised in many instances to hear that their own subordinates are illicitly carrying on this work under their very eyes in some parts of India, for I may say that vaccinators and compounders have at times to my personal knowledge been "Suttrahs" in disguise, and it has always been my practice to keep an eye on all subordinates of this kind belonging to the Kayasth caste, for, as above

mentioned, the vast majority of couchers in India belong to this caste. This fact is in itself interesting, in that the unsophisticated villagers must come off very second best against the cunning and wiles of men of this caste, and that they do, I know for a fact also. That they can and do obtain such a large number of patients is not to be wondered at, for, if one reflects for a moment as to the difficulties experienced by the ordinary blind villager situated at long distances from a skilled surgeon, to whom he is unable to repair for relief, and the fact as opposed to this, that these "Suttrahs" are prowling about the villages in almost every district bringing relief (such as it is, temporarily I admit) to the very doors of these poor folk, can we be surprised at their availing themselves of it, especially when the immediate results, as I have seen personally, are usually so successful, for after all the standard of vision after operation which the illiterate villager puts up with need not be very high for practical purposes, and it is, of course, that factor of immediate vision, afforded by this operation, which appeals to most of them, as I have personally ascertained. I have always made it a practice myself, and am glad to find it is becoming almost universal for district medical officers on their tours in the cold weather, to take the necessary equipment with them and operate on eye cases in outlying parts of their districts, this will in time do more to destroy the prestige and patronage of these "Suttrahs" than anything else I know, and let us hope gradually do away with any need for their existence by bringing home to the people at their homes practically the superior advantages of our Western methods of operative treatment of cataract.

In para 2, Major Elliott makes an interesting observation on the method of attacking the cataract, and says that so far as he is aware such has never been described before, a reference, however, to my article, abovementioned, will show that this method with a preliminary posterior sclerotomy has been the usual one adopted by "Suttrahs" in parts of India with which I have been acquainted. Moreover it is perfectly easy to at once detect all eyes operated upon by these men by two factors usually present (even if a portion of the luxated lens be invisible on careful inspection), viz—(1) a tremulous iris, (2) a small pigmented scar, the seat of puncture in the sclerotic about 6 mm outside the corneoscleral margin in the region of about 8 o'clock on the outer side of the eyeball (4 o'clock if R eye). This is the punctured incision (for it is, when seen done, more in the nature of a stab), which is made by the shielded lancet (*vide* fig 1), prior to insertion of the "sillai" or couching needle. With the instruments used by these men in N India (which I have only hitherto been able to obtain) it would be almost impossible, without, of course, fatally damaging the eye, to couch the lens from the front, and, further, any damage done to its capsule would allow of access of the

aqueous humour to its substance with other troubles, which possibly the more experienced of these men know, and hence the posterior method seems to have become the most popular method of procedure

I cannot altogether think with Major Elliott, that the selection of the actual spot for puncture is "more than accidental" for I have seen marked variations, with correspondingly disastrous results, in one case, one of these men had actually wounded the ciliary body!

The actual couching needle is interesting. I note that the pattern used apparently by Mohammedan Vydians in S India appears to be of uniform thickness more or less, and has a cotton stop, the actual couching portion or point appears on section to be triangular, this must be for some purpose, and I think I am able to supply the reason. In patterns used in parts of India I have alluded to, the shape of the instrument varies considerably from the one depicted in the article, the handle is much thicker about 3 mm in diameter at base, and three inches in length from base to tip, is wound, the whole length with cotton thread, leaving the point, which is of triangular shape, exposed and of bare metal. In this instance too the couching needle, or "sillai" as it is called by them, is made entirely of copper (*vide* fig. 2). This pattern, used generally by United Province and Central Indian "Suttrahs," is a neat instrument, and differs from that used by the Punjabi "Suttrahs" (who, by the way, I believe, go locally by the name of "rawals") in the size of the actual



FIG 1

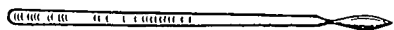


FIG 2

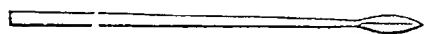


FIG 3

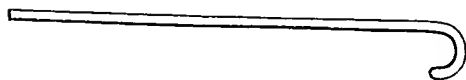


FIG 4

needle tip, the latter (fig. 3) being in this case much larger and clumsier in appearance, attached are sketches I have made, which depict them fairly accurately both in actual size as well as appearance. The cotton winding in this case is put on to afford a firm hold, as well as to prevent a sudden or too deep passage of the point into the eyeball, prior to the actual depression of the lens. Now as to the triangular

(on section) tip of the needle, I believe, that this is intended to provide a more or less sharp edge with which to rupture the suspensory ligament of the lens in order to free the latter, and allow of easy depression, for during the movement of the needle made by the "Suttrah" in the act of depression, one or other of the sharp edges of this would come into contact with this delicate structure and certainly be more useful in effecting this purpose than a rounded body. The flat surfaces possibly afford a more reliable grip and prevent the needle from slipping off the periphery of the lens while depression is being effected, so that I think it is intended to serve the double purpose, for apparently this peculiarity exists in the types of instrument used by these men in different parts of India.

From many conversations I have had with these men at different times, I can only infer that their methods are purely empirical and depend solely on personal instruction from men of same caste, and on ideas handed down from generation to generation, and that their real knowledge of anatomy is nil.

Any measures in the way of asepsis are of course conspicuous by their absence, and account for the loss of many eyes. I regret, owing to many and long transfers over the Empire during my service, that I have not been able to keep up sufficient data to enable me to give reliable statistics of any magnitude on this point, but I have seen quite enough to convince me of the truth of Major Elliott's statement, and that his percentage of actual loss of eyes from this cause alone is by no means exaggerated. Apart from the question of sequelæ arising as a result of injury to ciliary region, through faulty technique, sepsis, etc., a very real and grave danger is the incidence of secondary glaucoma after such operations, which I have frequently noticed, a fact which can be very easily accounted for when the actual method of depressing the lens is taken into consideration, *eg*, attacking the lens from behind, and depressing it downwards and forwards as is followed by most "Suttrahs." The position of the posterior sclerotomy is such that when the needle is used, the lens must inevitably be pushed downwards and more or less forwards against the lower and back portion of the ciliary body and iris, causing obliteration of the posterior chamber in that region, and pressing severely on the adjacent parts and materially diminishing the filtration angle in that region, resulting eventually in glaucomatous symptoms, if the lens should ultimately become fixed in this region. I have personally noticed this factor in many eyes of patients who have been operated upon by "Suttrahs," often at fairly long periods after the operation, and it has usually been the steady and gradual failure of vision resulting from this glaucoma which has in most instances forced these patients to seek operation at some

subsequent date for relief of the cataract in the other eye!

I fear that their "diagnostic sense" will not deter them from operating even on eyes with advanced glaucoma, provided that the lens shows cataractous changes, especially where there is a willing victim and one who is able to pay anything, or what is worse, from whom anything is capable of being annexed! (Vide my article in *Oph Soc Trans*)

In N India where the vast majority, at any rate, of couchers as abovementioned belong to a caste of Hindus the question of use of fowl's blood does not come in, for they are of course almost exclusively vegetarian in their diet, but I now come to a point of procedure on part of some "Suttrahs" I have known which I think far outshines the cunning of his professional brother in S India! In one old "Suttrah's" armamentarium (which is now in the *Oph Society's* Museum in London), I found amongst his instruments a small box containing tiny pieces of membrane (which on microscopic examination were found to be more or less fibrous in character), and it was a long time before I could find out what these were intended for—it however suddenly dawned on me that possibly these were to show their miserable dupes that something tangible was extracted from the eye after their operation. And so it proved. These little masses of tissue, which in order to show some variation, had been stained in various colours, were kept secreted by the 'Suttrah,' but before commencing operations a piece was, unnoticed by the patient or his friends, thrown into water so that by the time he had completed the operation it would become untravelling, and assume the aspect of a "jhill" or membrane, and he could then show the relations of the patient that something tangible had been removed from the eye! I firmly believe that this piece of charlatanism and deceit has been evolved by these "Suttrahs" as a direct outcome of the result of our Western operation, at which of course patients and their friends have often seen the actual lens removed, and that in order to keep pace with us and restore their waning popularity, they have been obliged to show some result in this way, for one must remember that several of these patients, as must have been noticed by most Indian surgeons, have been operated upon by both methods at different times, and must appreciate the different procedure adopted, and after consequences at any rate.

The procedure of covering the head of the patient with a cloth prior to operation is usually, but I believe not one universally, adopted, except by the older class of "Suttrah" and then only is done apparently to impress the relatives or crowd, and make the performance savour of some kind of "jadu"

The chief instruments usually to be found in the N Indian "Suttrahs" armamentarium are (a) one or two "sillars" or couching needles (figs 2 and 3), (b) a "chumtee" or pair of forceps of very rough construction, (c) a hook or "palak utaine ka kanta," this latter being used as a lid retractor, as well as for treating pterygium (fig 4), and lastly (d), the "nastai" or lancet (fig 1), which is used for the sclerotic puncture, being protected to within about three mm of its point by cotton thread wound round (in order to prevent too deep penetration of eyeball), and which in most cases is usually filthy, and as septic as possible. I have seen many of these as simply vaccination lancets which have been discarded and turned to this use. The whole is enclosed in a cloth or leather case to roll up, and be easily carried, which in addition contains a few drugs, "soomaz," "unjan" alum, etc., for application to eyes for various ailments. Few, if any, of them carry implements for venesection, cupping, etc., but I have seen such in their kit, together with a few lancets for opening abscesses, etc., but possibly these form a more or less permanent part of the equipment of the Mohammedan Vaidian, as being more compatible with the craft of the "Jaiiah," who is usually a Mohammedan and belongs to the large class of hakims so prevalent in India in all our large cities.

I think, it is a great pity that something cannot be done in the way of legislation, to at least protect the unsophisticated villagers against the depredations of these men, for, as I have pointed out, there is a great deal of deceit and rascality often mixed up with their actions and dealings with these folk, and in this connection I did address the Local Government some years ago, but with no result. Since then, however, I have been able to get several dmbars to take up the matter, and, I am glad to say in many states there are orders to the police not to allow "Suttrahs" to wander about the villages, but, so long as they can, when pressed, find a safe asylum in British India, no real benefit can result, if, however, the question of a Medical Act for India is really seriously taken up, this would afford a strong weapon wherewith to combat this evil, and I sincerely hope that a few years will now see this much-to-be-desired reform brought about.

In conclusion, I would like to add that I have in addition to those already mentioned, come across members of other castes who have taken up the work of "Suttrahs" from time to time, and recently found two men of the Thakur and Dhimal castes who were earning a livelihood in this way, but it is exceptional rather than the rule, and by far the majority of these men as abovementioned are connected with the different sections of the Kayasth caste, so far as the Hindu element amongst them is concerned.

ON THE TECHNIQUE OF THE HYPODERMIC INJECTION INCLUDING A CRITICAL SURVEY OF THE TYPES OF SYRINGE IN USE

BY W. E. McKECHNIE,

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It may be that the very simplicity of the operation of hypodermic injection accounts for some lack of knowledge of how to do it. The subject seems to be too trivial to require explanation and demonstration by the teachers in the medical schools. The medical curriculum is too short for the teaching of everything, and there are important surgical procedures like the tying off of an iliac aneurysm which claim prior attention. But I dare swear there are parts of the world like Madagascar where there have been more deaths from post-hypodermic tetanus than from iliac aneurysm. Medical students and nurses are left to find out the best methods for themselves.

I have one patient to whom I have given over two thousand injections in a period of four years. She informs me that, although she has had injections from many other medical men, and nurses, none of them have done it really well. Often needless pain has been inflicted, and frequently the object of the injection has been defeated by loss of some of the medication or by its insertion into an unsuitable place where it has not been rapidly absorbed.

There is little doubt in my mind that the employment of unsuitable syringes has prevented many medical men from using this method of medication to the extent which its value justifies and even demands. I know personally of a case where a medical man has thought it would be quicker to give a patient some Tinct. Opium by the mouth than to get the dessicated piston of his syringe ready for the injection of a little Solution of Morphine. No medical man cares to bungle a thing in the presence of the patient and his friends. Yet that must be the fate of the man suddenly called upon to give a hypodermic injection with one of many of the syringes at present on the market.

The great majority of these are bad, a very few are good. The bad would not survive as they do were there not a demand for them. The same dealers who sell a good kind of syringe sell quantities of various bad kinds, and some large dealers sell nothing but bad ones proving that there must be many customers with no discrimination. The latest type of Army pocket case is beautifully 'aseptic' and expensive and contains a very elaborate hypodermic syringe which is practically worthless.

The Syringe—The oldest and worst species is the syringe with a glass barrel mounted in metal and with a leather piston.

There are innumerable varieties of this syringe and every maker sells them. Some are worse than others but they are all bad. Leather is not a suitable material for the piston of a hypodermic syringe. Such a syringe is liable to be unused for a time and then the leather shrinks and gets hard and will not fit the cylinder. Any dirt there is clings to it, if it is oiled there is a horrid mess produced between the oil and the watery medicament. The barrel is made out of a piece of drawn glass tubing which, owing to the method of its manufacture, has a taper bore, so that the piston cannot fit evenly throughout its length. The glass is mounted in a metal frame and to make the connection water-tight there are leather or rubber washers. These quickly get filthy and soon deteriorate and fail in their function of being water-tight. It is annoying to battle half an hour with a hard and shrunken leather piston, and to find that it fits too tightly in one part of the syringe and too loosely in another, and if these difficulties are overcome to find that the washer is blocking the exit to the needle and allowing a leak between the glass and the metal collar. Even if there were not these objections the type is unsound because the whole of a given quantity of fluid cannot be injected on account of some of it remaining in spaces left after the plunger has been depressed.

Another species is the glass-barrelled syringe with rubber piston and washer. The most familiar form is Roux's syringe as made by Collin of Paris. It is a good syringe in many particulars especially for large serum injections. But it has disadvantages. The rubber perishes, especially that of the washer. When not used frequently the piston often sticks, and an attempt to dislodge it often breaks the glass. Also there is too much residual fluid left in the syringe after injection, and its quantity varies, so that it shares the defects of the leather piston and washer. The metal covering to the end of the syringe prevents one from seeing the last of the injection which may be oily or dirty.

Another kind is a glass syringe which tries to avoid the rubber piston by employing a metal plunger. I have no hesitation in condemning this form. The glass and metal are incompatible on account of the difference of their specific expansions at different temperatures. The metal plunger, therefore, cannot be made a water-tight fit in the glass cylinder without endangering the integrity of the syringe if heat has to be applied. In this type also there is usually embodied the objectionable feature of a washer between the glass cylinder and the metallic armature with its consequent loss of injection fluid, liability to collection of dirt, and difficulty of seeing what is being injected. To my mind it is singular that any maker should elect to make a metal plunger to fit a glass cylinder when a glass one is really easier to make.

Baker's otherwise admirable syringe for spinal anaesthesia belongs to this type

Another species is an "all-glass" syringe made with the barrel and nozzle all in one piece. The nozzle is evidently made by drawing down the larger tube of the barrel. A hollow cone is thus formed in the interior connecting the large bore of the barrel with the small bore of the nozzle. The piston cannot be ground to fit into this, so that here again we have a residuum of solution left in the syringe when the plunger is completely depressed so that the whole of a given quantity of medicament cannot be injected. Some makers make this syringe with a plunger of which one part is a ground-in piston and the remainder a handle of smaller diameter than the piston. The small length of ground-in piston admits of leakage past it more readily than when the whole length of the plunger is ground to piston fit. Besides the latter form is less liable to break.

It remains to discuss two types, which, of those on the market, alone merit being used.

1 The "all-metal" syringe with ground-in metal plunger. This is very good when well made. The needle can screw on to the nozzle or be a cone fit. The screw form prevents the needle from flying off under pressure, but it is more liable to leak from faulty fitting than is the cone fit, and one is also more or less confined to using the maker's own needles.

The chief disadvantage of the type is that one cannot see the solution one is injecting. If sterilised by boiling or by antiseptic solutions they are apt to rust, and if sterilised by hot oil they become inconveniently hot to hold. They are apt to leak if the piston is not oiled which militates against sterilising them by boiling or antiseptics. But despite these objections I think the medical man should possess one not for daily use but as a stand-by in case he finds that his last available glass syringe is broken.

2 The "all-glass" syringe. This, in the form in which both piston and nozzle are ground accurately into the barrel and themselves make accurate contact in its interior so that no space is left between them in which residual solution can remain when the plunger is fully depressed, is the best kind of hypodermic syringe which has so far been produced. But it is a syringe which requires proper treatment and understanding. It is curious to me to note that Messrs Bunnoughs and Wellcome who sell a syringe of this type which is made in Germany issue instructions for the care and use of the syringe which are quite wrong.

The thing which no doubt chiefly militates against the use and sale of this syringe is that the plunger is liable to stick in the barrel. A very little water getting between the plunger and the barrel causes this. The film is so thin that immense molecular forces come into play and bind the two surfaces together. When one approaches molecular dimensions the tena-

city of water approaches that of steel so that if at places the barrel and piston with a film of water between approach sufficiently near to one another the parts become practically solid. Now Bunnoughs and Wellcome advise their customers to take the barrel nozzle and plunger apart and to thoroughly dry them. When required for use to put the syringe together dry. I think they discourage the use of oil. This is all wrong. It is quite true that if the parts are dry they will slide in and out and fit perfectly and never stick. They behave beautifully thus in the maker's hands and in the shop. But in use they become wet, all is well so long as the film of water remains thick enough to prevent the molecular forces coming into play. But a portion fitting very well may permit of too thin a film of water creeping between the surfaces or a difference of lateral pressure may cause the same thing, or a partial evaporation of solution may cause it. Then we get the vice like grip of the capillary forces and the syringe is stuck. But supposing by good fortune a thick enough film remains throughout the operations. After use, according to Bunnoughs and Wellcome, we have got to dry the thing again. In my experience it won't be used thus many times before the nozzle sticks, and then it is very difficult to thoroughly dry the syringe, and it takes more time than the busy man is often prepared to devote to it. A minute quantity of liquid is left in the syringe, and it is the minute quantity which is the most fatal of all. A jam results. No unless one is prepared to be constantly buying new syringes one should not proceed according to Bunnoughs and Wellcome's instructions. In another matter their instructions are unsound. The plunger is to be inserted in the barrel and then a little water put in. Then the "tabloid" is dropped into the water and the nozzle put on. The finger is then applied to the nozzle to stop it up and the plunger is slightly withdrawn to diminish the pressure on the solution so that the air in the tabloid expands and bursts it so that the medicine enters into solution. It is all very convenient and pretty but what about sepsis? I prefer not to run the risk of infecting my patient with a solution thus prepared.

It is certainly curious that on the one hand medical men do not know what syringe to use as proved by the great variety of instruments upon the market and, on the other hand, that even the leading purveyor of what I regard as the best instrument does not know how it should be used and actually issues instructions which must have the effect of materially reducing the sale of the appliance.

The best way to use a syringe such as the "all-glass" of Bunnoughs and Wellcome is as follows. Put the nozzle in the barrel and press it home. It does not matter if it sticks. I prefer it to stick because then it is not so likely to be forced off when making an injection.

Also if it sticks when well home it will not run the danger of at some time sticking when half way home, which would spoil the syringe. Next proceed to insert the plunger in the barrel. Take it from the maker's wrappings and dip it in clean olive oil. See that the oil covers every part. Then put some oil in the barrel and roll it round so that there is a film of oil all over the interior. Now insert the plunger very slowly into the barrel. Keep revolving it backwards and forwards and moving it gently up and down in the barrel gradually letting it enter more and more. The instant it is felt to stick or there is increase of resistance the previous motion must be reversed and the plunger slightly withdrawn to ease it and allow of a sufficiently thick film of oil to get between the surfaces, which is the object of these proceedings. In this manner the plunger is easily introduced till it meets the nozzle stopper. It will then be found that it works with the utmost freedom in the barrel. The film of oil will prevent any water from getting between the glass surfaces if the syringe be used in the manner to be described. Sucking on account of a water film is eliminated. The plunger once introduced is allowed to remain in the barrel and is not removed and wiped and dried after each injection. The same for the nozzle. There is a small glass collar on the plunger which retains the film of oil at the one end, whilst the nozzle retains it at the other. Olive oil is not volatile like water so that the syringe may be put by for a long time without any danger of the film becoming so thin by evaporation as to cause binding, which would happen in the case of a film of water under the same circumstances. When the plunger and stopper remain always in the barrel, there is no danger of scratching or fouling the glass surfaces, and also the syringe is more solid and less likely to get broken or its parts mislaid. Oil has a further advantage that if in places its film does get too thin, it will not bind the glass surfaces together so fiercely as water does. This is because oil has less tenacity than water. Everyone knows that oil spreads out to a very thin film on the surface of water. This is because the tension of the water is greater than that of the oil and, therefore, it pulls it out into a thin film. Other things being equal there is a greater chance of separating the surfaces when bound by oil than when bound by water. To do this a Spanish Winch should be applied. I have thus restored to function several syringes which had lain useless and stuck for years.

To make an injection get two tea spoons put clean olive oil in one and the solution to be injected in the other. If morphia is to be injected I usually take about 1 cc of water in the spoon and boil it for a little over a spirit lamp. I then drop a tabloid of morphia into the boiling water, soiling the tabloid as little as need be and boil for a few seconds longer till the tabloid

is dissolved. Then I take it off the flame at once. If morphia is boiled it loses its valuable hypnotic and analgesic activity to a large extent and is liable to cause nausea and even vomiting. I presume this is due to some oxidation into Apomorphine. I should be glad to know if this is the explanation. But I am certain, from an extensive practical experience, that a boiled tabloid is more nauseating than an unboiled one. Also an old tabloid is weak *qua* morphine and very nauseating and liable to cause a disagreeable feeling of fullness in the head. When the tabloids lose their bright white colour and assume a brownish hue, or when the solution becomes brownish they are not fit to use. They are nauseating and ineffective. I suppose this also is due to a slow oxidation taking place at ordinary temperatures in the course of time.

The solution ready, the spoon containing it is set aside to cool and the spoon containing the oil put on the flame. Olive oil at a temperature of 140°C instantly kills all germs and spores it touches. Heat the oil until it just begins to smoke. It is then well above this temperature. Immerse the needle in the smoking oil and pull the oil into the syringe. Before lifting up the syringe catch the needle at the butt with a pair of forceps, to prevent its dropping off the nozzle.

Hold the syringe vertically with the point upwards, then almost withdraw the plunger so that the hot oil reaches well up the barrel of the syringe and sterilises it. This it does instantly. Eject the oil taking care to hold the needle on with the forceps. Immediately fill the syringe with the solution in the other spoon. Hold vertically point up and withdraw the plunger till a fair-sized air bubble is inside the syringe. This air bubble will attach itself to the surplus oil floating on the top of the watery solution. By advancing the plunger, and holding the syringe at a suitable angle the air bubble followed by the attached oil can now be made to enter the nozzle and is ejected from the syringe till only the solution is left. This can be clearly seen in its entirety. There is a film of oil adhering to the glass, but it does not affect the injection and it is necessary to prevent the jamming of the syringe. When the injection has been made, a little of the sterile oil which was left in the spoon is sucked into the syringe and ejected in order to lubricate the needle and clean the syringe. Steel needles thus used will last a very long time. Smoking hot oil does not spoil them and the film of oil constantly upon them prevents them from getting rusty. It is not necessary to bother about putting the wire into the needle. It is only waste of time. A very sharp needle causes very little pain, and every practitioner should learn to sharpen his own needles.

For ordinary hypodermic injections I prefer the finest steel needles made. Bunnoughs and

Wellcome's needles are a little thicker than is necessary. Used as above even the finest needles will last a long time, and if sharp cause practically no pain or bleeding. But if oily emulsions are to be injected, such as mercury creams, suspensions of salicylate of mercury, etc., a stout needle of large calibre should be used, such as those made by Collin for his Roux antitoxin syringes. I would suggest that each glass hypodermic syringe should be provided with at least three kinds of steel needle. One very fine about an inch long. One stout with large bore for thick emulsions from one and a half to two inches long. One still stouter about three or four inches long for exploring abscesses especially of the chest and liver and for lumbar puncture. If in addition Barker's needle and cannula for spinal anaesthesia were provided the instrument would be very complete. There need not be the slightest hesitation about employing the same syringe for all these purposes if the smoking oil be used for sterilisation as described, for the sterilisation is absolute and instantaneous as I have proved by many laboratory tests. The glass syringe is admirably adapted for exploring purposes. The vacuum it makes is very good and anything which enters the syringe can be seen at once. The oil is a bland substance and does not alter the physiological or pathological fluids as antiseptics and water are apt to do. This is specially important in lumbar puncture diagnosis.

The glass syringes can be had up to 20 cc in size, and all sizes should be treated in the same way. The most convenient size for ordinary hypodermic medication is about 1.5 cc. When selecting a syringe it is well not to choose a fat and short one. The long and thin ones are the best. A small bore transmits less hydrostatic pressure to the hand and thus the injection is easier to make than when the bore is big. It must be remembered that the fluid pressure on the cross section of the needle is multiplied on the plunger by exactly as many times as the cross section of the plunger is a multiple of that of the needle. Thus if the bore of the needle is 0.2 mm in diameter its cross sectional area is $0.1 \times \pi$ sq mm. And if the plunger has a diameter of 8 mm its sectional area will be $16 \times \pi$ so that any resistance which the tissues may offer to the flow of fluid from the needle will be multiplied on the plunger $\frac{1}{16}$ times, that is to say, one thousand six hundred times. Thus a very small resistance in a fine needle may cause a disconcertingly formidable resistance to a thick plunger. For this reason large antitoxin syringes should be used with stout needles quite apart from any question as to the nature of the fluid to be injected.

The Injection—The best site to choose as a rule is the back of the upper arm. Many people are in the habit of injecting into the forearm. This is a mistake. The forearm is more sensitive than the back of the upper arm and there is much

less cellular tissue under the skin in this region so that painful distension is apt to be produced at the site of injection. The injection is not so quickly absorbed in this region, probably for the same reason. The region over the insertion of the deltoid is unsuitable as here the subcutaneous tissue is dense. The injection should be above or below this place where the tissues are loose. A common fault in making injections is not to place them deep enough. The proper place is in the loose areolar tissue just superficial to the deep fascia. The thickness of the combined skin and superficial fascia should be remembered. It can be accurately gauged by picking a loose part up between the finger and thumb. The needle is inserted perpendicularly to the surface through the prominence so formed and boldly thrust in till the point is near the deep fascia. The injection is then easily made, very little resistance being experienced and practically no swelling being produced if the injection is a small one. It is a mistake to thrust the needle in obliquely as one so often sees it done. The injection is then likely to be made into the skin itself, in dense tissue, which causes pain and swelling, and a slow rate of absorption, so that very often the full effect of the drug is not produced. I think it is due to failure to do the hypodermic injection properly that the so-called intra-muscular injection has been invented. I am persuaded that the great majority of intra-muscular injections are really hypodermic ones of the proper depth. For practical purposes, *pace* the anatomists, the skin and superficial fascia is one structure or organ, which varies in density and thickness in different parts of the body and has varying mobility according to the needs of those parts. It should be our aim to choose a mobile part and to place our injection underneath it, but superficial to the deep fascia. More superficial injection constitutes injection *into* the skin, not under it. When substances are injected into the skin, pain and tension are caused. If they are substances like quinine or mercury this tension becomes aggravated and necrosis is liable to occur. A deep injection has been dubbed by some one "intra-muscular", and it has been recommended to be placed in the buttocks where the muscles are big and thick. But it is curious to note the kind of instrument some "intra-muscular" injectors use. The needle is only about an inch long, at least that has been my experience of Army patterns. Now the superficial fascia of the buttocks is generally the thickest and loosest in the whole body. It is usually an inch thick, often more, and it is for this reason that an injection in this region is less liable to lead to tension than in other places, an inch deep injection constitutes a good hypodermic one.

Sterilisation of the patient's skin is as a rule not necessary. Gross uncleanness should of course be submitted to soap and water. An ordinary clean skin may be safely punctured without preparation. Any germs the needle meets on the

surface are mostly wiped off by the dense superficial layers before the more succulent structures are reached. Without sterilisation of the skin but with the precautions I have advocated above, I have made over 2,000 injections in one patient, and not one of these injections had showed the slightest redness, far less any attempt at abscess formation.

If in any case sterilisation be deemed advisable, a good plan is to touch the part with a minute drop of *Acidum Carbolium Liquefactum* and after a minute to thrust the needle through the centre of the whitened skin. Should excess of carbolic be applied and flow over the skin, it can at once be rendered harmless by applying rectified spirit from the spirit lamp. I use the carbolic method for spinal anaesthesia and for typhoid and plague inoculation. Liquid carbolic is very rapid and powerful, and has great penetration as shown by its anaesthetising effect, and, for these reasons, I think it is the most convenient substance to use.

Suggestion for the improvement of the all-glass syringe

The Bunting and Wellcome form is very good but, unfortunately, the point of the glass nozzle is very fragile. With the utmost care it will be found that this part will break occasionally. When sterilised with hot oil the butt of the needle expands more than the glass which allows it to mount the glass cone higher than usual. On cooling there must be a considerable crushing force on the glass. This may account for some of the breakages. But a more likely cause is a difference of temperature between the glass inside the needle and the glass outside.

Whatever the cause the fact remains that these syringes are faulty in this respect.

I would suggest that the syringe be made of the approved pattern of the all-glass syringe, but instead of making it of glass to make it of fused silica, the hardest and toughest of glass-like substances. If this can be done, the syringe with care should last a life-time and would be well worth the cost of half a dozen ordinary glass syringes. It could be sterilised directly in the flame if required. Fit it with a small fine needle, a short stout one for thick injections, a long stout one for exploring and lumbar puncture, a Barker's spinal anaesthesia needle style and cannula, and a lachrymal nozzle, and it would be as complete a weapon of its kind as the Surgeon can want.

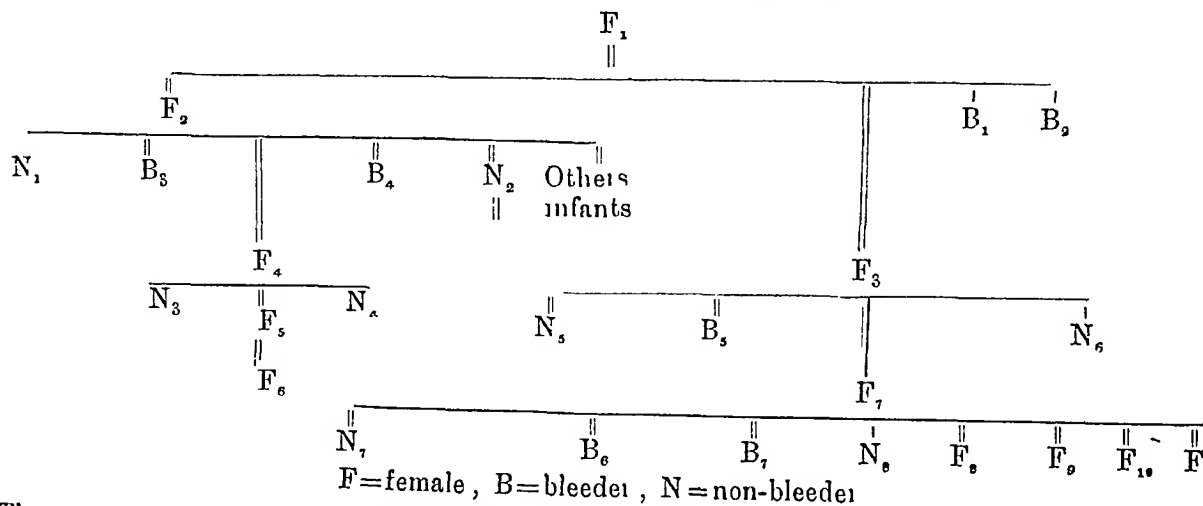
A Mirror of Hospital Practice.

A HÆMOPHILIC PEDIGREE

BY MALCOLM MACNICOL M.A., M.B., C.M. (Glas),
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HÆMOPHILIA is a rare enough disease to make it worth while putting one's experience on record. Osler says that the Anglo-Germans are chiefly attacked, and I am not aware whether many cases have been recorded in India, nor have I access to clinical statistics. It is surely, however, strange that in the small Christian community here, numbering between 80 and 90 souls, there should be two families with "bleeder" stories.

Here is the one family's pedigree, beginning with the great-grandmother —



The metal of the needle carries heat away very quickly and so cools the glass inside it, whilst the glass just beyond the needle, being a bad conductor of heat, remains hot, and a pretty steep temperature gradient is established in the glass nozzle at the place where it enters the butt of the needle. This is a condition which causes fracture of the glass, and in the majority of cases it will be found that the glass fractures just inside the butt of the needle.

The great grandmother is stated to have had two brothers, who were non-bleeders, and lived to mature years. Of her descendants, however, fifteen are known to have been males and seven were definitely bleeders, while out of the remaining eight, two at least—N₁ and N₂—should be omitted, one dying at birth, and the other being still-born. Two of the bleeders lived to the age of 18 or 20—B₃ and B₅—and it was hæmorrhage into the joints which finally

carried the latter off. Though B₁ was known to be a bleeder, he is believed to have died of some independent disease. The deaths of B₂ and B₃ were both subsequent to vaccination, and followed on operations on "boils." The eldest son of this family—N₁—was kept out of the vaccinator's hands, but his mother knows of traumatism which gave no trouble, and though he was a feeble boy, and died at the age of thirteen, he was not a "bleeder." The three girls, F₉, F₁₀, and F₁₁, may be expected to carry on the hereditary disability to another generation.

The other family, to which I have referred, shows the taint in the only son, a boy of five. The weakness was discovered accidentally, a small wound refusing to dry up. I had some tablets of eucain and suprarenal extract, the only preparation of suprarenal gland which was in stock at the time, and this helped to diminish the oozing. The hæmorrhage continued sufficiently active to cause great increase of the false rate, and much restlessness, but after two days the ordinary suprarenal gland extract (adrenalin) arrived, and speedily caused complete coagulation of the blood, and relief. Some time later a hypodermic injection of quinine was given to this boy, and great swelling ensued, the result, no doubt, of hæmorrhage. Again, a small boil on his upper jaw was opened by an incision, which hardly did more than pierce the mucous membrane, but hæmorrhage recurred again and again, even while adrenalin was applied, it finally yielded, however, and was at no point very alarming. His father states that small traumatic wounds have healed spontaneously.

Twice I have had stories given me in the out-patient department, which seemed to point to hæmophilia. In one case there was no doubt at all. The boy was brought, and my advice was asked because his brother had died of hæmorrhage from trifling wounds. The guardians were very intelligent in their description of the case, and had kept all edged tools out of the boy's hands. They came to ask if I could propose any for the safeguard.

Some doctor friend once told me that any healthy person's blood would act as satisfactorily as adrenalin in causing coagulation. Is there, I should like to know, any record of the successful use of this agency? It is a most valuable suggestion in view of the rapidity with which suprarenal extract deteriorates, and could be acted on in any remote situation. I have thought it so valuable that I have explained its applicability to the family of the boy of five. Sheep's blood or goat's would suffice

A CASE OF RETRO OCULAR NEURITIS CAUSED BY SUN-TRAUMATISM

By J. H. SHORTEN,

LIEUT. R. M. S.

In view of its uncommonness, not merely as a sequela of sun-traumatism, but even, as an

idiopathic disease, the following particulars of a case may be of interest to your readers—

The patient, Lance Naik Bhanat Singh, aged 26, 120th Rajputana Infantry, was admitted to hospital on 4th November 1909.

Previous History—There was no history of syphilis or hereditary nervous affections. He had served 1 year in the army and had spent 18 days in hospital suffering from malaria two years ago.

History of present illness—The patient was engaged in carrying a bundle of grass on his head in the jungle at Buxa Duar on 4th November 1909. The temperature was about 85°F. The trees afforded a certain amount of shade. About 2 P.M., while carrying a load, he fell down and became unconscious. When seen by 3rd class Hospital Assistant Hormasjee M. Simboowalla, his condition was as follows—

His face was flushed. There was marked pulsation in the temporal artery. The conjunctivæ were red, the pupils dilated and sluggish in reaction to light. The temperature was 102°F, the pulse 105 strong and bounding, the respirations slow, deep and stertorous.

He was treated by the usual methods, and by 6 P.M. had practically recovered, except that he complained of some dimness of vision. He slept well during the night, but in the morning complained that he was unable to see anything. His pupils still showed a sluggish reaction to light and were moderately dilated. He also complained of frontal headache and pain in the orbits. He was given a smart purgative and chloral hydrate, grs 15, twice daily.

His condition remained unchanged, and on 7th November he was admitted to the Fort Hospital, where he was seen by 1st class Hospital Assistant K. N. Atnishi. His condition now was as follows—

There was conjugate deviation of the eyes upwards and to the left, so that the corneæ were hidden under the upper eyelids above the corresponding canthi. The pupils could with difficulty be seen. He was able to distinguish between light and darkness, but could not see anything. There was pain between the eyebrows.

Blisters were applied to the temporal regions, and potassium iodide administered in 5 grain doses, three times daily for some weeks.

I saw him first on 22nd January 1910, about 11 weeks after the attack. His condition was then as follows—

Inspection—He held his head down with his eyes partly open. The sclerotics only were visible. The pupils could be seen with difficulty as he resisted raising of the eyelids and rotated his eye upwards. He was thin, pale, and anxious, and showed signs of slow cerebration. He complained of pain when an attempt was made to open his eyes.

Functions of the optic nerve—He could differentiate between light and darkness. He complained of seeing spots and flashes of light.

Functions of the motor nerves of the eye—The internal and external movements were normal, but downward movements were absent, and attempts to produce them on the patient's part caused considerable pain. The conjunctival reflex was present. The pupils responded to light.

Trophic symptoms—There were no trophic symptoms.

Functions of the fifth nerve—These were normal.

Function of the olfactory nerve—Normal.

There was no change from the normal in the tension of the globes of the eyes. There was no pain on pressure of the globes backwards.

There were no other symptoms of a brain lesion though the knee-jerks seemed to be increased.

The following treatment was adopted—

(1) The patient was placed in a dark room.

(2) Blisters were applied on the temporal region (rupee-size), and over the nape of the neck (large size).

(3) A smart purgative was administered and the bowels were kept open.

(4) A mixture of Bromide and Iodide of Potash was given.

(5) He was put on a liquid diet.

(6) Tobacco and alcohol were prohibited.

26th January 1910—His eyes were examined by means of a speculum after the application of cocaine. The pupil reacted to light and accommodation. He brought his cornea down and looked straight forward for a few seconds for the first time, but complained of severe frontal pain on doing so. He could not see fingers, but could distinguish the light of a match from that of a candle. *Potassium iodide* was increased to grs 15, three times a day, and *Ti belladonnae*, in 5, three times a day, was added to his mixture.

28th January 1910—The blisters were repeated. The dose of Pot iod was increased to grs 20. He could distinguish white objects.

30th January 1910—The conjugate deviation of the eyes had disappeared. He complained of no pain, could count fingers at 3 feet and recognise large objects. Pot iod increased to 25 grs.

31st January 1910—An ophthalmoscopic examination was made. There was some congestion of the retina, slightly woolly appearance of the edge of the disc and a haziness.

3rd February 1910—The condition of the patient was as before. The dose of iodide was increased to grs 30 and blisters were again applied. As no perimeter was available, the field of vision was carefully tested by means of a blackboard and was found to be contracted in all directions for both eyes, as compared with that of patients whose vision was normal. No traces

of a central scotoma could be discovered. His colour vision was normal.

Since then a gradual improvement in the patient's condition has taken place. He can now read without difficulty and has successfully passed the "Test Dot Card" test for recruits. His field of vision still seems to be somewhat contracted. Ophthalmoscopic signs of optic neuritis have disappeared, and the disc looks rather anemic, even now he complains that he cannot see well in a bright light.

With reference to the diagnosis—

(1) It is evident that the case was originally one of those ill-defined cases, which lie between heat-exhaustion on the one hand and miasis on the other, and are classed by Sir Patrick Manson under the heading sun-traumatism.

(2) The absence of any gross meningeal lesion is shown by the absence of irritation or paralysis of the cranial nerves.

(3) An ophthalmoscopic examination could not be made till late in the case owing to the conjugate deviation of the eyes. It is evident, however, from the appearances seen that there must have been some optic neuritis.

(4) The diagnosis of retro-ocular neuritis rests on—

(a) The rapid, though not sudden loss of sight.

(b) The impaired pupil reaction.

(c) The pain in the orbits and on moving the eyes.

(d) Ophthalmoscopic signs of optic neuritis.

(e) The photophobia and the fact that the patient can see less well in a very bright light even now.

(f) The more or less complete recovery.

Two symptoms of this affection mentioned in some of the treatises on eye diseases, viz, pain on pressure of the globe backwards and central scotoma could not be elicited owing, probably, to the case having been seen at such a late stage.

The conjugate deviation was rather a troublesome symptom and was possibly due to the presence of intense photophobia, which caused the eye to roll upwards on any attempt being made to open the lids, much after the fashion of the eye on the affected side in facial paralysis, when the patient is told to shut his eyes.

My thanks are due to the two Hospital Assistants mentioned above for the thorough and conscientious manner in which they carried out my instructions.

NOTE ON A SIGN OF CHRONIC MALARIAL POISONING

By W. A. MURRAY, M.B.,

Lundung, Assam.

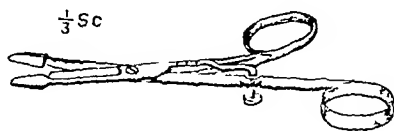
THE sign in question is a dark blush or red colouration on the hypothenar eminence of the hands. It is not a deposit of pigment as it disappears on pressure, quickly reappearing

when the pressure is removed. It is continuously present in those cases where it occurs and not only during an attack of fever. It is not developed after one attack of malaria, but only appears in those who have had numerous attacks and presumably numerous infections. It is not apparently caused by other fevers of a prolonged type as it did not occur in the only cases of Malta fever and "Low Fever of European Immigrants" (Rogers) which I have had the opportunity of examining. I cannot find any reference to this condition in any of the books which I have been able to consult, which is my reason for writing this note. I do not know that the sign is of any great importance, but it is interesting and I am quite at a loss to explain the causation. It is, of course, only observable in Europeans and Dr Bentley to whom I mentioned it informed me that he had observed it in at least 75% of the Europeans in the Duars, all of whom are exposed to frequent malarial infection.

A NEW COMBINED NEEDLE HOLDER AND SCISSORS

By C H JAMES, F.R.C.S.,
MAJOR, I.M.S.

THOSE surgeons who have had many plastic operations to do, especially about the face where numerous stitches have to be inserted, must have experienced the delay which is often caused by having to use one instrument for holding the needle and another for cutting the sutures. This is especially noticeable in private practice where one cannot always get the trained assistance which one is accustomed to in hospital, and where one's scissors have a knack of slipping away and getting mixed up with artery forceps or other instruments.



To obviate this I had a combined needle holder and scissors made for me some years ago. The instrument has undergone several modifications, but the form illustrated here which was made for me last year by Messrs Down Brothers, London, has proved so useful that now I seldom do any operation, in which it does not find a place in my tray of instruments.

As will be seen by the diagram, it consists of a pair of scissor-cutting blades with a forceps-like projection at the ends between which a needle can be firmly held. A catch working on a pin and button in the handles keeps blades closed until the forefinger presses down the button. The scissor blades are broad enough to allow the scissors to be used without

the catch coming into action except when the handles are pressed firmly together, so there is no chance of it interfering with the cutting of the threads. On the other hand, when the catch is fixed, the instrument is so firmly closed that there is no chance of the needle held at the end slipping. It will also be noticed that the button is very conveniently placed for the action of the first finger.

By adopting Kocker's unequal handles, so that one ring can be slipped over the thumb and the other held on the 3rd finger of the right hand, the instrument allows perfect freedom to the first finger in tying the stitches and testing their tension, and moreover, it can be held in the hand the whole time they are inserted, tied and cut, without any of the "business end" coming in contact with the operator's skin and thus getting septic. During the tying even free movement can be obtained and all the fingers set free, by simply slipping the thumb out of the short-handle ring. When this is completed, the thumb can be again inserted and the instrument is ready to act purely as a pair of scissors.

The instrument is simple and inexpensive and, in my case, has proved very useful.

A CASE OF HYDATID CYST OF THE ORBIT

By M FOSFIRE REANEY, M.B. (Lond), D.P.H.,
CAPTAIN, I.M.S.,
Civil Surgeon, Wardha, C.P.

As hydatid cyst of the orbit is a "rarity of surgery" (*vide* Elliot and Ingram's paper in the *I.M.G.* for January 1910), the following case is worth reporting—

Chandria, a Mang, aged about 45, a resident of Rasulabad village, was admitted to the Main Dispensary at Wardha, C.P., on February 24th, 1910. He plays a "sana" at festivals, etc., and denies having had anything to do with dogs. The soil of his village is partly "black cotton" and partly "red muham." For the last eight months he has had pain in the left side of his head. His left eye has been unduly prominent for the last month, during which time all sight has been lost in it. On admission there was marked exophthalmos of the left eye, the eye looking upwards and outwards. The pupil was dilated and fixed. The tension of the eyeball seemed, if anything, a little diminished. The lower eyelid was much swollen. Ophthalmoscopic examination showed a cloudy vitreous humour in the left eye, the right eye was normal. A diagnosis of an orbital tumour was made and operation advised.

The eye was enucleated in the usual manner on February 26th. At the time of cutting the optic nerve some limpid fluid escaped. On inserting the finger, after the enucleation was completed, a thin-walled cyst was found and easily brought away. It was complete except

for a small opening which had evidently been made by the scissors, most of the contents had escaped. Before being cut into, it must have measured about one and-a-quarter inches in diameter. There was a well-marked loose capsule at the back and inner side of the orbit, where the cyst had been. On enlarging the opening in the cyst, the cut edges curled outwards. A portion of the wall, examined microscopically, showed a laminated structure. At one spot there was a minute yellow point, this was picked up with forceps and examined in a drop of the cyst fluid under the microscope and a typical scolex was seen, with the rostellum extended. Owing to the dryness of the air the fluid rapidly evaporated and on moistening with glycerine and covering, the rostellum was found retracted. As most of the contents of the cyst had escaped during the operation, no chemical examination of the fluid was possible. No daughter cysts were found.

A CASE OF DERMOID CYST

By O. S. J. MOSES, FRCS ED.,

CAPT, I.M.S.,

Police Surgeon, Calcutta

The accompanying photographs marked respectively "before" and "after" operation

the district of Backerganj, to be rid of a large swelling which he had carried about on the right side of his head, according to him for the best part of 40 years.

There was nothing of special interest in the past history of the case except a rather vague account of some injury to the head, received when the patient was a lad of 10 years. This was followed by a swelling which soon reached the size of a betel-nut and thereafter grew gradually. Latterly it had become very tender on pressure.

At the time of his admission to hospital he had a swelling which measured about 9 inches in its long, and 6 inches in its short axis, bulged in a tense manner from the right side of the head and fluctuated on palpation but showed no pulsation of any kind.

An exploratory puncture confirmed the diagnosis of its cystic nature. At the operation the sac was laid open freely, the contents consisting mostly of accumulated sebaceous secretions, were turned out, and the cyst-wall dissected away. The portion of the latter nearest the skull showed an abundant growth of hair projecting into the cavity of the cyst, and this part of the sac was firmly adherent beneath. The underlying bones, especially the right-parietal, were hollowed and indented in



BEFORE OPERATION



AFTER OPERATION

make pretty surgical pictures. Asaruddy was a Mahomedan male patient, about 50 years of age, who came from the village of Kalupura in

parts but were not wanting anywhere. The operation itself was very simple, healing took place by first intention, and the result was

exceedingly satisfactory in all respects. The little scar to be seen in the second photograph ceased to be at all visible as the hair grew and covered it up. The patient went away delighted at having been relieved of a great burden.

A CASE OF RUPTURE OF SPLEEN

By CHARLES MILNE, M.B.,
MAJOR, I.M.S.,
Civil Surgeon, Gorakhpur

A HINDU, name unknown, was brought to the District Hospital, Gorakhpur, by the Police on 17th November 1909. He had been found travelling by train and was picked out of a railway carriage in an unconscious condition. He was examined by Assistant Surgeon R. N. Chaudhri, I.M.S., who found his condition to be as follows—

Quite unconscious, pulse weak, respirations slow and laboured, the bases of both lungs were dull on percussion, breath sounds were heard over left base with crepitation, over right base no breath sounds were heard. There was no rise of temperature.

Next morning I examined him—his condition had not altered. It was obvious, however, that something more serious than a slight pneumonia was present, and I was unable to decide whether it was a head injury, poisoning or an abdominal lesion. There had been no vomiting and the patient's pupils were normal and equal. There was nothing to show that an abdominal organ was injured. The abdomen was quite flaccid. He passed a few stools after an enema and there was apparently no pain nor discomfort in the abdomen. There was no injury of any kind on the head.

The man lived until the morning of the 22nd November 1909. A *post-mortem* examination was made 6 hours after death—patches of pneumonia were found at the base of the right lung. Four ounces of blood were found lying free in the abdominal cavity—the spleen was enlarged, weighing 11 ounces, and there was a rupture 4 inches long in the outer surface. This was attached by slight inflammatory adhesions to the abdominal wall. There was no external injury whatever.

Cases of rupture of the spleen are always of interest, for this reason I have thought it desirable to publish this somewhat obscure case.

THE OPHTHALMIC REACTION IN EARLY PHTHISIS

By L. G. FINK, M.B., C.M.,
Civil Surgeon, Burma

SERGEANT Man Bahadur, No 726 B, of the Mysore Military Police Battalion, has been under

my observation for nearly 18 months, and from the very beginning tubercle of the lung has been suspected. In the early part of 1908 when he first came under observation he had no physical signs of phthisis, he was, however, losing flesh, had a slight cough and is said to have spat some blood. His sputum was repeatedly examined for T. B., but none were found.

On 14th March 1908, I tried Calmette's Ophthalmic reaction test and got a positive result in the left eye after 30 hours. On 14th May 1908, I repeated the test, but this time in the right eye and again got a positive reaction. No T. B. could be found in the sputum. The man has been kept under observation, and now I have for the first time succeeded in finding T. B. in the sputum. The man has still a slight cough, suffers from night sweats, sputum is white and frothy (not nummular), and occasionally slightly tinged with blood. There is slight dullness on percussion at the apex of the right lung, expiration prolonged as compared with inspiration, breath sounds somewhat jerky, no mucous rales. Evening temperature about 100° F, pulse 70, respiration 22 (respiration/pulse ratio increased). It will thus be seen that the physical signs are indicative of slight consolidation and the disease appears still to be in an early stage. Tubercle bacilli, however, are being excited in the sputum and the diagnosis since finding these is practically certain. The interesting point in this man's case is that ophthalmic reaction test gave us a positive reaction early in 1908, and that we have had to wait nearly 15 months before we were able to find T. B. in the sputum. The ophthalmic reaction test appears to me to be one of decided utility in the early diagnosis of cases such as this.

NOTE BY EDITOR

LIEUTENANT-COLONEL HENRY SMITH, I.M.S., of Amritsar, asks us to mention that he is preparing a reply to Major Kilkelly's article in our May No., and we have promised to give him space in our July issue. Colonel Smith asks our readers to suspend their judgment till his reply can be read. We are sure that many of our readers will look forward to Colonel Smith's reply with interest.



Indian Medical Gazette

JUNE

SURGICAL OPERATION RETURNS

IN our December 1909 issue (p 477) a medical officer signing himself *Comme il faut* directed attention to the unsatisfactory nature of the annual reports on the hospital and medical work done in the various provinces and pointed out especially the many demerits of the existing plan of counting good work by the total number of surgical operations performed. There was a time, some 15 years ago, when this arithmetical method reached its acme, but we do not think that so much importance is now attached to quantity rather than the quality of surgical operations, though we admit a tendency to judge of the work of a public hospital by the mere number of the operations, at least if an Inspecting Officer does not consciously do so, nevertheless a high total cannot fail to insensibly impress him, and needless to say subordinate officers can be found who will "play up" to such inspections. Both our correspondent *Comme il faut* and the writer of the letter we print below (who is a well-known Indian surgeon, holding an important appointment in a large Medical School), point out the need for a professional man to compile these returns. Certainly the lay staff of an office, however experienced, cannot fully appreciate the difference between one operation and another, and it is suggested to use the services of a Civil Surgeon either as a personal assistant to the Inspector-General or deputed for a few months to help to compile the annual report.

Everyone knows of the enormous amount of good clinical material which never sees publication. Of recent years Surgeon-General Lukis, when head of the Medical College, Calcutta, allowed us to publish in full his valuable reports of the work of that great institution, and in our last issue we published an admirable extract from Major Robertson Milne's report on the work done in the large Central Asylum at Berham-pore. These, however, are only samples, and nearly every Civil Surgeon could send in similar reports of very great interest if they were made use of, but so long as they are only used to fill in a column of figures in a report mainly statistical, busy Civil Surgeons will not spare the time to write anything interesting.

We herewith publish our correspondent's letter and invite comment on it. We are not respon-

sible for the statements and figures in it, but we are bound to say we think that he has said enough to show the need of an inquiry and reform.

In the December number of the *Indian Medical Gazette* a correspondent drew attention to certain defects of medical administration reports. Amongst other things he said that (1) the chances of greater success in operative surgery are sensibly minimised by attaching undue importance to the number of operations performed, irrespective of their results, and that (2) it was necessary to appoint a professional man—an I. M. S. officer or a member of the Provincial Medical Service—as personal assistant to the Inspector General of Civil Hospitals. The above observations deserve more than a passing notice.

The present method of judging the operative work by the number of operations performed, irrespective of the results, might lead surgeons to, unconsciously, perform unnecessary operations and also to show more than one operation on one patient, though the latter practice is against the existing Government circulars on the point. There is practically a race between surgeons as to who can show the largest number of operations. This is particularly apt to occur in operations in the *selected list*, e.g., operations on bones, abdominal section and obstetric operations. The abdomen is opened for exploratory purposes in a large number of cases, thus increasing the number of abdominal sections. Uterine appendages might be unnecessarily removed for the same purpose. Forceps are applied and hands introduced into the uterus after labour to remove a bit of membrane or the placenta, when all these could be avoided. This temptation can be checked if not only the results, both as regards mortality and morbidity, but also the indications for operations were scrutinized by a professional man in the Inspector General's Office.

The present selected list is absolutely no indication of the quality of surgical work done. The snipping off of a mucous polypus of the nose or cervix has the same value as the removal of a thyroid adenoma or a cerebral tumour, the putting up of a simple fracture has the same value as a laminectomy, puncture of membranes or the removal of a bit of membrane from the uterus after labour, are given the same value as a difficult craniotomy or a Cæsarean section. I would suggest that the surgical work be estimated by a system of "points," taking into consideration the *mortality* and *morbidity* of operations. To give practical effect to this system, a committee might be appointed, representing the different branches of surgery. The committee might determine (1) what value should be attached to individual operation. (2) What would be the *minus* value of mortality—for calculating which operations might be classed as those of "urgency" and of "expediency." (3) What would be the *minus* value of "morbidity." This can be judged by the amount of relief obtained and the number of days' stay in hospital after operation. The practice of sending away a patient from the hospital before he is thoroughly cured after an operation, is unfortunately too prevalent. The patient goes the very next day, to another hospital, with a sinus in a suppurating operation wound and slowly recovers. This is not fair either to the patient

or to the other hospital. This practice ought to be stopped. In this connection (4) some inter hospital rules might be considered by the committee, by which patients admitted to a hospital with a history of having been operated on recently in another hospital might be sent back to the latter. (5) The results "cured", "relieved" and "otherwise" should be accurately defined and definite values attached to each. (6) The question of how to return deaths after operations should be discussed too—e.g., how to return a death after version in a case of placenta prævia.

I should therefore urge on the necessity of insisting upon a uniform and a better method of registration of surgical operations. The returns must be scrutinized by a professional man in the Inspector General's office. If a permanent man cannot be entertained, a medical officer can be told off for duty, say for a couple of months. Though the Government circulars are distinct on certain points, yet a number of operations are shown on one patient performed for the cure or relief of one and the same diseased condition. There is no doubt that this practice has drifted to a considerable extent. It is difficult to prove this from the published returns as these do not show (1) the operation returns of the different hospitals separately, and (2) the medical and surgical cases in the indoor and outdoor patients separately either. The only figures available for comparison are those of "abnormal labour" and "obstetric operations". It can be fairly assumed that the "obstetric operations" were performed on the majority of "abnormal labours". Even assuming for argument's sake that all the abnormal labours required some operation, the number of patients operated on cannot be more than the abnormal labours. The figures taken from the annual returns of the charitable dispensaries under the Government of Bengal for 1908 are these:

	Abnormal labours	Obstetric operations	Number of patients operated on
Calcutta Medical Institutions	305 } $\frac{51}{4}$	507 } $\frac{52}{2}$	506 } $\frac{52}{2}$
Provincial Hospitals	147 } $\frac{41}{4}$	280 } $\frac{22}{2}$	275 } $\frac{22}{2}$

Certainly there could not have been more than 752 patients, yet the number shown in the operation list is 781!!!

MALARIA IN BOMBAY

A VERY valuable paper was read by Dr C A Bentley, at the December meeting of the *Bombay Medical and Physical Society*, and as this has just come to hand in the *Transactions* (Vol XIII, No 4), we may give some extracts for the benefit of our readers.

At the commencement of the present enquiry, Capt A G McKendrick, I.M.S., examined 8,000 children, and was able to map out the areas of intense malaria, but the children are an uncertain quantity and many go away before the fever season.

Since then 15,000 children have been examined, and as a more exact method 3,000 blood films have also been examined. In a majority of

places the rate of infection ranged from 10 to 15 or 25 per cent in most places, but in such parts as the North Fort, Esplanade, Mandvi, Market and Colaba sections, the rate of infection was found to be as high as 50 per cent or even 70 per cent.

The previous work of Glen-Liston and McKendrick had established the anopheles *Nyssorhynchus Stephensi* as a malarial carrier, and Bentley has confirmed this fact and after an examination of many other mosquitoes he is able to say that "this mosquito is the only one of any real importance in relation to the existence and spread of malaria". It is, however, an uncommon mosquito in Bombay and only forms 1 to 5 per cent of the total number of mosquitoes present in any locality in that city.

Its breeding places are of two kinds, temporary and permanent. The permanent breeding places are (1) wells, out of 3,000 wells examined about 1,000 are breeding the *Nyssorhynchus Stephensi*, these wells are usually within the yards or close to thickly crowded tenement houses, and so form "an ideal arrangement for the continued dissemination of malaria".

(2) Cisterns—iron cisterns over latrines, on roofs or within houses are next in importance. Several hundred such infected cisterns have been found in the residential parts of Bombay, the South Fort of Esplanade and Colaba. Many street fountains harboured larvæ of this malarial-carrying mosquito. The small tanks or reservoirs used by *malis* in private gardens are also a great source of danger, and thousands of larvæ of the *Nyssorhynchus* have been found in these small tanks in private gardens.

Besides these, other permanent breeding ground of the *Nyssorhynchus* are the filter beds and reservoirs at Malabar Hill and Bhandarwade and numerous larvæ were also found in shallow pools of water on the sand surface of the filter beds. Then come certain big tanks, while certain other dirty tanks and tanks covered with the rootless duckweed known as *Wolffia Alhiza* were found not to be a source of danger as regards mosquitoes. This weed is said "to have the property of actually destroying larvæ by mechanically preventing them from reaching the water surface to breathe". Pools on the foreshore are a grave source of danger, and even pools with 25 per cent of salt water were found to harbour larvæ. Temporary breeding places come into existence during the rainy season, being surface pools near building or engineering operations. They

appear only to be dangerous when permanent breeding places exist in their vicinity. It is worthy of note that clean and possibly fresh pools of water are far more dangerous than foul and stagnant ponds in which the processes of putrefaction seems to destroy the larvæ of *Nyssorhynchus*. Minor breeding places are many, such as tin-pots, barrels, hollows, etc., but here again these are dangerous only if near a permanent breeding place. The *Nyssorhynchus Stephensi* is a domestic mosquito, and lives and breeds near the dwellings of human beings and readily adapts itself to new or artificial conditions. In this respect it resembles the non-malarial *Myzomyia Rossii*. It usually breeds in close association with man, but it is capable of flying several hundred yards in search of food or a suitable breeding place. The larvæ of *Nyssorhynchus* are very sensitive and at the slightest sign of danger rapidly sink to the bottom of the water, they even disappear if one approaches a pool or makes the slightest movement of the water. They have great powers of withstanding heat, even in cisterns with water at 100° F in the hot sun, the larvæ will continue to breed and they can live in water with a large percentage of sea water mixed.

We quote from Dr Bentley's paper as follows—

"A consideration of the habits of the species of *Anopheles* that we have been discussing—*Nyssorhynchus Stephensi*—makes it at once apparent why this particular mosquito should be enabled to exist and thrive in the midst of large cities like Bombay, Delhi, Amritsar and Madras.

"It is extremely probable that the distribution of this mosquito in Bombay has been increasing in recent years, coincident with the increase of suitable breeding places in the form of iron cisterns, many thousands of which may now exist in the city. Originally it must have been largely restricted to wells, a few small and large tanks, etc., but with the introduction of a pipe water supply and the gradual increased use of water closets and latrines, each requiring supply cistern, the opportunities for the breeding of the malaria carrier—*Nyssorhynchus Stephensi*—have increased proportionately. The carelessness that has led to the use of open or improperly closed cisterns inside houses and on the terrace roofs has brought about an extraordinary condition of things. The introduction of a water-carriage system of sewage disposal has generally been looked upon as an advance in sanitation. But in certain parts of Bombay, owing to the careless manner in which cisterns have been erected, one form of sanitation has only been exchanged for another."

The distribution of this mosquito, though widespread, is not uniform, and a curious fact

was elicited that this mosquito is often carried to all parts of the city hidden inside the body or hood of *ghazis*, victorias, broughams and other vehicles. As many as twenty-five have been found in one vehicle and they are also found in railway carriages.

Dr Bentley's paper is a very valuable contribution to the study of malaria in a locality and should be of great practical value.

Current Topics.

THE COX FUND

We are requested to publish the following—
Office of the Superintendent, X-Ray Institute,
Delhia Dun

Names	Rs	As	P
Hosptl Asst Ghasita Rain	3	0	0
" Khurshaid Ali Khan, I S M D	10	0	0
" Nabibux Ellahibux, I S M D	5	0	0
Maj A C Waring, R A M C	32	0	0
Hosptl Asst Solomon, I S M D	10	0	0
Asst Surgn A McCutis, I S M D	5	0	0
Capt E A C Matthews, I M S	10	0	0
" R S Smyth, R A M C	16	0	0
Asst Surgn W V Kane	15	0	0
Capt A Chopping, R A M C	16	0	0
Mi P Seshayya	15	0	0
Asst Surgn T B Butcher, I S M D	4	0	0
Capt C A Turner, R A M C	5	0	0
" W Buisson, R A M C	5	0	0
" M B H Ritchie, R A M C	5	0	0
" V C Honeybourne, R A M C	5	0	0
" R E U Newman, R A M C	5	0	0
" D de C O Grady, R A M C	5	0	0
" A H Heslop, R A M C	5	0	0
Lient H C G Semon, R A M C	5	0	0
Capt E A St Romane, I S M D	5	0	0
Asst Surgn C C A Wall, I S M D	2	0	0
" J H Holmes, I S M D	1	0	0
" Richardson, I S M D	2	0	0
" W O Connor, I S M D	2	0	0
" G H Perkins, I S M D	1	0	0
" D L Mackay, I S M D	1	0	0
" H Fox, I S M D	2	0	0
" J G Johnstone, I S M D	1	0	0
" P Thorpe, I S M D	2	0	0
" M C R Rodgeis, I S M D	1	0	0
" J H Martin, I S M D	2	0	0
" A M F Browne, I S M D	1	0	0
" R G Smith, I S M D	2	0	0
" G M Brown, I S M D	2	0	0
" R Holmes, I S M D	2	0	0
" C F Quick, I S M D	1	0	0
" J G Dunning, I S M D	1	0	0
" A R Bell, I S M D	1	0	0
" G W Doyle	2	0	0
Lient Col M W O'Kieffe, R A M C	5	0	0
" A F Bate, R A M C	5	0	0
Major W C Poole, R A M C	5	0	0
" E C Anderson, R A M C	5	0	0
Captain C W Munro, R A M C	5	0	0
Station Hospital Aden through Asst Surgeon B J Bouche, I S M D	15	0	0
Mi A J Fly	5	0	0
Hospl Asst Syed Abdul Basit, I S M D	2	0	0
Captain A E Walter, I M S	12	0	0
Lt Col W J Buchanan, I M S	10	0	0
TOTAL	320	0	0
DEDUCTIONS— Stationery, printing and postage, Rs 8, and discount on cheques, Re 1 13 0	9	13	0
	310	3	0

The above Fund is for the benefit of Mr H W Cox, who is in great pecuniary straits and very ill from cancer, which has supervened on X-Ray dermatitis. Further subscriptions will be gratefully received by the Superintendent, X-Ray Institute, Captain A E Walter, I M S, Dehra Dun, U P

THE ABUSE OF COMMON SALT

In the *Proceedings* of the Royal Society of Medicine (Vol III, No 4, February 1910) appears a remarkable article on the abuse of common salt which is well worth the attention of medical men in India where the use of salt is considered essential and where a reduction in the salt tax is looked upon as an eminently popular action.

The writer, Dr R Ackerley, writes not as a physiologist but as a practitioner in a spa practice. He begins by tracing the use of salt back to early man who possibly liked the saline taste of animal blood, and he quotes Féié who says that salt is "a stimulant not any more indispensable than the alcohol and tobacco, salt added to food is not necessary and in certain conditions it is harmful."

Dr Ackerley points out that the use of salt as a food or with food though common is not universal, the ancient Numidians and Egyptians did not put salt in their food, and Vidal states that the inhabitants of Northern Siberia and the Kirghizes of Turkistan have an actual dislike to it.*

Dr Ackerley disposes of the statement handed down, often without verification, of the supposed like of salt in wild and domestic animals, and claims that the evidence merely shows that both men and animals take to salt, not because they need it, but because they have acquired a liking for it.

Again, considering the number of other salts in our body, why is only one (Na Cl) added to our food as a regular thing and in enormous quantity?

It is not always remembered that a man of 10st say, 140lb has in his body about 11 ounces of Na Cl, and it is quite common for a man to take from half to one ounce of salt daily, the average seems to be three-quarters of an ounce or twenty grammes.

On the other hand, physiologists seem to state that all the salt the body requires daily is almost 2 grammes or 3 grammes (30 to 40 grains) and considerably more than this is contained in our food without any artificial addition†. The question then remains does the extra quantity so universally taken do no

harm? It is difficult to believe that, as most of the salt is excreted by the kidneys, an excess quantity continued for years will not do harm to those organs, and Dr Ackerley quotes cases of patients with eczema, morning diarrhoea and various "gouty conditions" who were excessive salt eaters. There is also no doubt that the use of salt in excess tends to increase the body weight, as Na Cl is retained in the body in solution, and this is a state of "Chlorhydræmic plethoria" (Dixon Maun, *Physiology, &c, of Urine*, page 13).

This whole paper is well worthy of study. To our mind there seems little doubt that the abuse of salt in the kitchen and at the table is great.

THE ANNALS OF TROPICAL MEDICINE

THIS admirable series of studies from the Liverpool School of Tropical Medicine continues to appear at intervals. The number now before us dated 21st March 1910 (Vol III, No 5) is small but contains several valuable papers.

We may as well advise our readers that there are three courses of instruction held yearly, beginning on 6th January, 1st June and 15th September in this school.

In the present issue of the *Annals* there is an article by Dr Anton Breinl and Mr E Hindle, on the life history of *Trypanosoma Lewis* in the rat-louse (*Hæmatopinus spinulosus*), which is beautifully illustrated, another good paper is by Dr Washington Yorke, on the variation of the hæmolytic complement in experimental trypanosomiasis. Dr R H Kennan, of Sierra Leone, gives a good note on cases of acute claw-claw which is well illustrated.

Mr F C Willcocks has a useful note on the prevalence of mosquitoes in Cairo and its environs. As a result of "high Niles" in 1908 and 1909, the low-lying parts of Cairo and its environs were flooded and mosquitoes soon began to abound. *Culex fatigans* was as usual abundant, and the larvæ of *Celtra pharoensis*—a supposed malaria carrier—were frequently found, but no cases of malaria were discovered. "The apparent rarity of malaria (in Egypt) has raised doubts in the writer's mind as to the exact rôle played by *Celtra pharoensis* as a carrier." This is the more remarkable as this *Anopheline* is a domestic mosquito both in the larval and adult stages.

In December 1908 a new *Anopheline* was discovered in Cairo and has fallen under suspicion as a carrier. It is now called *Pyretophorus cleopatra* (a name which rather anticipates the discovery of its being a malaria carrier). It has been found also at Helwan, and in brackish water. A number of natural enemies to mosquitoes were found in pools, especially the water bugs called *Notonecta* or "backswimmers". The writer is evidently sceptical of the

* On the other hand, the word "salary," well known to us all, is derived from "*Salarium*," or the daily allowance of salt served out to the Roman soldier, and this was considered so important that this allowance became the term applied to the whole fixed reward of a man's labour.

† Bengal prisoners get as much as 7 chitak very nearly one ounce daily and McCay's researches, when published, will show that this is excessive.

non-existence of malaria in Cairo and urges a thorough investigation of the question. As he says, "If it is rare so much the better for Egypt."

In the final article in this issue Sir Robert Boyce and Mr F C Lewis discuss the effects of mosquito larvæ upon drinking-water. It is known that the presence of *Stegomyia* larvæ are a source of danger in yellow fever countries and the *Salopus* is especially fond of clean water, and at one time the presence of the larvæ of the mosquito was actually taken as evidence that the water was clean. Sir R. Boyce therefore undertook certain experiments to test this belief with the result that while in clean drinking-water drawn from a tap the bacteria after a few days' increase begin to rapidly decrease, but if living larvæ are placed in the water there is a rapid rise in the number of bacteria (per cc) and this is enormously increased if the larvæ happen to die. In other words, the larvæ add mucus to the water which acts as a food for the bacteria. The evidence therefore shows that larvæ tend to pollute the water.

THE SEPTIC FLY

THE following useful note on the breeding places of the harmful septic fly is reproduced from our contemporary *The Hospital* (April 2nd, 1910), and is well worthy the attention of all medical officers of hospitals, jails and similar institutions. The danger of flies conveying the poisons of cholera and dysentery is well known in India, but sufficient efforts have not yet been made to fight the flies. In jails a fly gang would be as useful as the mosquito gangs. The following remarks apply primarily to European countries, but are also applicable to India—

"The chief breeding places of the house fly are (a) Stable middens containing fermenting manure or a mixture of this and cow dung, (b) middens containing fermenting spent hops, and (c) ashpits containing fermenting vegetable matter—that is to say about 25 per cent of the total number of pits examined.

The conclusions arrived at as the result of extensive investigations upon the subject are—

- 1 That covered ashpits and middens are as badly infested as those that are open.
- 2 That house flies breed in all temporary collections of fermenting matter.
- 3 That house flies breed in relatively small numbers in ashpits where no fermentation takes place.
- 4 That they do not breed in ashpits that are emptied at short intervals or in the patent bins.
- 5 That the use of disinfectants in ashpits does not absolutely prevent the flies breeding in such receptacles.
- 6 That very dry or excessively wet ashes or moist cowdung does not harbour them.
- 7 That the presence of fowls (not ducks or geese), having free access to the stable middens, reduces the number of larvæ and pupæ to a very marked extent.
- 8 That the life cycle of the fly, in all kinds of fermenting materials, is reduced to the minimum period of ten to fourteen days, and that in the absence of such artificial heat the cycle may occupy a period of from three to five weeks or more.
- 9 That house flies do not depend entirely upon excessively warm weather for breeding purposes, though in hot seasons they breed much more rapidly in non-

fermenting materials, and then numbers, under such conditions, become greatly increased.

If house flies are to be reduced to a minimum, therefore, the following suggestions might be adopted—

1 Cow and stable manure should not be allowed to accumulate in the middensteads during the months of May to October inclusive for a period of more than seven days.

2 All middensteads should be thoroughly emptied and carefully swept at least once a week. The present system of partly emptying such receptacles should in all cases be discontinued. The walls of middensteads should also be cemented over, or, failing this, the brick work should be sound and well pointed.

3 All ashpits should be emptied during the summer months at intervals of not more than ten days.

4 The most strenuous efforts should be made to prevent children defecating in courts and passages, or the parents should be compelled to remove such matter immediately, and defecation in stable middens should be strictly forbidden. The danger lies in the overwhelming attraction which such fecal matter has for house flies, which latter may afterwards come into direct contact with man or his food stuffs.

5 Ashpit refuse which in any way tends to fermentation, such as bedding, straw, old rags, paper, waste vegetables, dirty bedding from the "hutches" of pet animals, etc., should, if possible, be disposed of by incineration, or be placed in a separate receptacle so that no fermentation could take place. If such precautions were adopted by householders, relatively few house flies would breed in the ashpits, and the present system of emptying such places at longer intervals than, say, four to six weeks, might be continued.

6 The application of Paris green (poison) at the rate of 2 oz to one gallon of water to either stable manure or ashpit refuse will destroy 99 per cent of the larvæ. Possibly a smaller percentage of Paris green might be employed with equally good results. One per cent of crude toxyl in water kills 100 per cent of fly larvæ. The application of either of these substances might, however, lead to serious complications, and it is very doubtful whether they could be employed with safety. Paris green at a rate of 1 oz to 2 oz to twenty gallons of water is used largely as an insecticide for fruit pests. It does no harm to vegetation when applied in small quantities, but cattle might possibly eat the dirty vegetable matter that had been treated with this substance, and the results might prove fatal if large quantities were eaten.

7 The use of sun blinds in all shops containing food which attracts flies would largely reduce the number of flies in such places during hot weather. Small fruiterers' and confectioners' shops, as a rule, are not shaded by sun blinds, and in their absence flies literally swarm on the articles exposed for sale.

8 The screening of middensteads with fine wire gauze would undoubtedly prevent flies from gaining access to manure, etc., but it is very doubtful if this method would meet with any marked success. The gauze would rapidly oxidise, the framework supporting it would probably warp and numbers of flies would be admitted whenever the receptacle was opened. Moreover, the erection of such a structure would prove a great inconvenience and a hindrance to the removal of the refuse. This, however, does not prejudice the possibility of inventing a good fly proof screen."

INSECTS CAUSING MYIASIS IN MAN

A USEFUL paper was read by Mr E E Austen, F Z S, of the British Museum, at the February Meeting of the *Society of Tropical Medicine and Hygiene*, on some dipterous insects which cause myiasis in man.

As a rule, myiasis occurs either in the nasal passages, the external auditory meatus, the alimentary canal or the subcutaneous tissue as in neglected wounds.

The majority of flies causing myiasis in man belong to the Muscidae, which included the septic or domestic fly and its near relations, such as the "blow-flies" (*Calliphora*), "green-bottles" (*Lucilia*), the genus *Pycnosoma*, and the screw-worm flies (*Chrysomya*) of the new world, but also the grey "fleshflies" (*Sarcophaga*), the tsetse flies (*Glossina*) and many others.

All these outwardly resemble the common housefly, and as a rule they breed in decaying organic matter or in excrement.

"While the majority lay eggs the very numerous species of the universally distributed genus *Sarcophaga* produce living larvæ, and in any case (except in *Homalomyia*) the footless larvæ are whitish or yellowish grubs of the type commonly known as maggots. A Muscid maggot, which consists of twelve visible segments, is broader posteriorly and tapers to the cephalic extremity, from which the tips of the two powerful chitinous mouth hooks, with which the creature rasps away its food, can usually be seen protruding. The various piratory apertures, which are situated on the flattened or cup-shaped posterior surface of the terminal segment, consist of two groups of three slits, each group being surrounded by a chitinous plate, and there are two subordinate groups of apertures, or stigmata, on the first postcephalic segment. Larval life, in the tropics at any rate, is usually short, generally lasting no longer than from four to six days, and at its conclusion the maggot contracts, and its skin hardens and darkens assuming, as a rule, first a reddish and subsequently a reddish brown hue, and forming a protective case or puparium within which the pupal or chrysalis stage is assumed. About a fortnight later the perfect fly makes its appearance, emerging through an aperture in the anterior end of the puparium, which the insect forms by forcing off a cap by means of pressure exerted by a dilatible vesicle in its head. Under normal conditions the pupal stage of all Muscidae is passed in the ground, so that, in a case of Myiasis, the larvæ, if allowed to remain undisturbed, would naturally leave their host on attaining maturity."

Mr Austen mentions that only a few cases have been reported from tropical countries, where, however, the infection is certainly not uncommon.

Of insects such affecting man in Asia first mentioned by Mr Austen is the *Aprochata fusciginea*, Brun, a very small but important insect, and which seems capable of passing through its entire life-cycle in the human colon. It is widely distributed in the tropics. Many years ago Surgeon-Major Oswald Baker, I.M.S., published a case of this infection (Burma Branch B.M.A., 1891), though it is only now proved that the insects belonged to this species.

In a recent issue, Oct 1909, Dr Lloyd Patterson gave a graphic account of nasal myiasis, probably due, Mr Austen thought to greenbottle flies of the genus *Pycnosoma*. Lt-Col F W. W. Thomson, I.M.S., sent larvæ, now in the British Museum, of an apparently new species of *Pycnosoma*, from a case seen at Dehra Doon, U.P.

It is clear that such cases are not uncommon.

THE INDIAN SPECIES OF PAPATASI FLY

The importance of the genus *Phlebotomus* from a medical point of view as the conveyor of the poison of the three-day fever of Malta* has recently been demonstrated, and there is but little doubt that certain Indian fevers, e.g., the three-day fever of Chitral is conveyed by some sort of sandfly, therefore we welcome a study† of the Indian flies of this genus from the pen of so able an observer as Dr Annandale of the Indian Museum.

Specimens are to be found in the corners of bathrooms during the day and round the lamps at night.

The following is Dr Annandale's list of known species of *Phlebotomus*—

Europe	<i>Phlebotomus papatasi</i> , Scopoli (S. Europe)
	" <i>minutus</i> , Rondani
	" <i>maculatus</i> , Grassi (Italy)
	" <i>tipuliformis</i> , Meunier (fossil in Baltic amber)
America	" <i>revator</i> , Coquillett (Maryland)
	" <i>circulatus</i> , " (Guatemala)
Africa	" <i>duboscqui</i> , Neveu Lemaire (Soudan)
Asia	" <i>papatasi</i> , Scopoli (Northern India, ? Java)
	" <i>himalayensis</i> , sp. nov. (lower Himalayas)
	" <i>malabaricus</i> , sp. nov. (Travancore, S. India)
	" <i>perturbans</i> , Meijere (Java, base of Eastern Himalayas)
	" <i>babu</i> , sp. nov. (plains of India)
	" <i>major</i> , sp. nov. (outer Himalayas, Paresnath, W. Bengal)
	" <i>argentipes</i> , Annandale and Brunetti (plains of India)

LUNATIC ASYLUMS IN BURMA

COLONEL W. G. KING, I.M.S., C.I.E., just before his retirement, published the annual note on the Burma Lunatic Asylums at Rangoon and Moulmein. There is a marked increase of recent years in the number of lunatics in Burma, an increase of 70 per cent in the past ten years. Lower Burma furnishes lunatics to the extent of 82 per 100,000, and Upper Burma 33. A statement which well illustrates the connection between the development of a province and the resulting pressure on the mental power of its inhabitants. The question of accommodation for lunatics is a pressing one, even the new temporary asylums at Moulmein are full up and the Rangoon Asylum is constantly overcrowded. At Moulmein the newly instituted small infiltration gallery for distributing good water has been a success, and Dr Wells, the Superintendent, considers it should

* See I.M.C. May 1910 p. 182.

† Records of the Indian Museum Vol. IV, No. 2, Calcutta March 1910 [see also a practical article in *Bombay Medical Congress Transactions*, p. 239, by Mr F. M. Howlett, of Poona.—ED., I.M.G.]

serve as a model for the water-supply of the town of Minbu

The death-rate at Minbu was 32 per mille, including three fatal cases of cholera, probably flyborne, at Rangoon, the death-rate was 93 per mille

We learn that forcible nasal feeding "which proved so inconvenient to suffragettes elsewhere" was practised in 31 cases, in one case for 64 days and on the other for an average of 16 days and with good results

It is very interesting to note that there were two fatal cases of general paralysis of the insane, a disease usually considered very rare in Indian asylums, Capt W S J Shaw, I.M.S., the Superintendent of the Rangoon Asylum, recently had two such cases also, so perhaps the disease is not quite so uncommon as supposed

THE EFFECTS OF COLD STORAGE ON VACCINE

As the method of keeping vaccine by cold storage is being introduced into India, the following extracts from the report of the Medical Officer to the Local Government Board, London, will be read with interest —

"The Medical Officer of the Local Government Board reports that during the past twelve months 400,820 charges of glycerinated calf lymph were issued from the Board's laboratory. In primary vaccination the 'case success' was 99.4 per cent, and the 'insertion success' 95.9 per cent, so that the high quality of the lymph was maintained. Some time ago a preliminary report by Dr Blaxall and Mr Fremlin was published on the results of sustained subjection of glycerinated calf lymph to temperatures below freezing point, and the present report contains further information dealing with lymph kept in cold storage for periods of two years and six months respectively. The two year old lymph, when withdrawn from cold storage, was found to be free from extraneous organisms, and when used by public vaccinators in the vaccination of 8,559 cases gave 'case' and 'insertion' percentage successes of 97.8 and 91.4 respectively. The lymph from six calves in all was used, and in only one of these instances, exceptable apart from the cold storage, did the lymph in any degree lose its activity. Since July 1908 the lymph collected weekly from two calves have been divided into equal portions one portion being placed in cold store for six months and then issued to public vaccinators, the other portion being issued to public vaccinators without having been previously subjected to a temperature below freezing point. The communication by Dr Blaxall and Mr Fremlin contains a comparison of the results of the use of lymph from 54 calves, which were each thus divided into two portions. The samples which had been exposed to a temperature below freezing point for six months were used for 40,931 vaccinations, and gave a case success of 99.2 per cent, and an insertion success of 96.7 per cent. The portions issued without cold storage at the end of six to eight weeks were used for 44,962 vaccinations, and gave a case success of 99.5 per cent, and an insertion success of 96.5 per cent. Thus the results obtained in both cases are identical. These results have considerable importance, since cold storage will enable a supply of lymph to be prepared and stored to meet any sudden expansion in the demand for lymph that may arise by reason of an outbreak of small pox" — (*The Hospital*)

THE NASTIN TREATMENT OF LEPROSY

DR W R BRINCKERHOFF and Dr J T Wayson have published a valuable note (Treasury Dept, Washington, U S A), on the therapeutic value of nastin in the treatment of Leprosy. A small but representative series of cases were selected for treatment, details of six cases are given. We quote the results as reported —

Types of disease treated — Three cases of tubercular and three cases of tuberculo anaesthetic leprosy

Age of patients — The age varied from 10 to 40 years, being 10, 16, 18, 20, 30 and 40 years, respectively

Sex — All patients were of the male sex

Duration of treatment — The cases were under nastin medication for from four months, three weeks, and five days to one year and three months (case 1, one year and three months, case 2, nine months and three weeks, case 3, one year, two months and two weeks, case 4, eight months and two weeks, case 5, one year, one month, three weeks and three days, case 6, four months, three weeks and five days)

Dosage — Our experience with dosage can be summed up as follows. Prolonged administration of small doses seemed to have no effect upon the progress of the disease, while an increase in the dose caused muscular pains, which necessitated a reduction of the dose or an abandonment of the treatment before any amelioration of the symptoms of the disease was observed

In three cases we made comparisons of the condition of the bacilli in the lesions before and after nastin medication and found no change in the distribution of the acid fast substance

CONCLUSION

1 In our hands the administration of nastin to six cases of leprosy gave slightly encouraging results in two cases. In one of these the lesions decreased in extent and took on a focal character. In the other case a tubercle disappeared during the treatment

2 Four cases seemed unaffected by the treatment, even when persisted in for over a year

3 Constitutional reactions were only seen when the dosage was large. No local reaction or puriform softening of tubercles was observed

THE CARE OF THE TEETH

HARRENKNECHT of Freiburg B. has a long note on this subject in the *Munchener med Wochenschr*. No 8 of 1910, from which we gather the following — It is absolutely useless to try to render the oral cavity aseptic even were this possible, in a few minutes thereafter the mouth would again be full of micro-organisms. What we have to do, then, is to prevent the micro-organisms from doing harm by means of their excretions or the changes which they cause in food-fragments, saliva, etc. The indications are to remove food-particle by rinsing the mouth freely after partaking of food, when the gums are inflamed a 3 per cent solution of peroxide of hydrogen works well as it gives off bubbles of gas which loosen the food-particles from the interstices of the teeth. All such preparations as Odol, Kalodont, etc., etc., are of use merely because they encourage one

* At one time we were inclined to attribute the failure of constitutional and other reactions to an inactivation of the preparation resultant upon adverse conditions in transit to us from the makers but a box of six doses of nastin B 1 retained by us to Kille & Co was reported by them to be active

to rinse one's mouth they have not, and cannot have, any effect *per se* on the mouth if used in weak solution, so as to be pleasant to the user. As good as any of these high-priced concoctions is this—Saccharin 2gm, Ol menth pip 3gm, Alcohol absol 100gm. Twenty drops of this solution in a tumblerful of warm water make a pleasant mouthwash, and a cheap one.

That the gums bleed when the teeth are brushed shows that the state of the gums requires attention, and this can best be given them by continuing to brush them, not by avoiding touching them with the brush. Toothpastes or tooth-powders are not required: the best of them only do no harm, and these are not common. The use of the toothpick is to be recommended, but the quill or celluloid forms are the only ones permissible. Soapy toothpastes are an abomination. Although a healthy gum can stand a good deal of bad usage, this is no reason why one should cause it to undergo such. Beginning caries may be checked by touching the spot with a drop of 50 per cent argent nit solution now and then on, if it be a front tooth that is affected with undiluted formalin. In either case the pulp must be still protected by a layer of dentine. The condition of the teeth should be inspected at least twice a year, and milk teeth should be filled, not extracted, so that the jaw may grow naturally.

THE INDIAN MEDICAL JOURNAL

WE welcome our old friend the All-India Hospital Assistants Journal in its new name and new guise as the *Indian Medical Journal*.

The present issue (February and March 1910) contains a full account of the Proceedings of the Fourth Annual Conference held at Indore under the presidency of Lieutenant-Colonel J R Roberts, F.R.C.S., I.M.S., A.M.O., of Central India.

The Conference proved a great success. The ever-energetic General Secretary and Associate Editor Mr P S Ramchandrier delivered a long and interesting speech in which he sketched the history of the Association during the past three years of eventful life. He had the satisfaction of announcing the long deferred and much-needed improvement in the scale of pay of that most useful class of practitioners formerly known as Hospital Assistants and now to be known as Sub-Assistant Surgeons. The new rate of pay, we observe, will be—

	Rs	
Fourth grade	30	per mensem
Third "	45	"
Second "	55	"
First "	65	"
Senior grade, 2nd class	80	"
Senior " 1st "	100	"

We wish the newly named journal and the Association it represents every success.

THE article we publish from Lt-Colonel Bannerman, I.M.S., is of considerable importance.

It shows the danger of *intravenous* injection of the permanganate, but as Major L Rogers, I.M.S., points out in our correspondence columns, this must not be misunderstood as to mean that the *local* use of permanganate is useless or dangerous. It is against the injection of this salt *direct into the veins*, as suggested by a zoologist in the Bombay Congress Transactions, that Colonel Bannerman's paper warns us.

Reviews

Congenital Dislocation of the Hip—By J JACKSON CLARKE, M.B. (Lond), F.R.C.S., Surgeon to the Royal National Orthopedic Hospital, etc. Demy 8vo, pp xiii—92.55 Illustrations. Price 3s 6d net. Messrs Baillière, Tindall & Cox.

MANY of us who were in England in 1903 will remember the impression created by Lorenz's 'Bloodless' operation for congenital hip disease, as performed by himself, and will agree that it was not altogether a favourable one. Yet time has shewn that when performed by a surgeon who is intimately acquainted with all its details, the operation is completely successful in well over a half of the cases. Jackson Clarke is to be congratulated on his admirable account of the operation of Lorenz in his book 'Congenital Dislocation of the Hip'. The operation is an extremely technical one, and the ordinary practising surgeon cannot hope to be successful except in a few cases, unless he has mastered all the details of the operation and seen it performed by an expert. There can be no doubt that the disease is not sufficiently recognized in the *mofussil* in India, as three cases we have seen during the last two years and verified by X-rays, had all been diagnosed as chronic hip disease by practitioners. There should be plenty of opportunities, therefore, for testing the operation in India, and one is tempted to think that with this excellent book on the subject as a guide, it would be possible to do justice to the cases without having actually seen the operation performed by an expert.

Jackson Clarke claims 75% of complete cures in the series of 40 consecutive cases of which he gives details, but it is well to note that he considers that the operation should not be attempted after 5 years of age in cases of double dislocation, and after 10 years in single dislocations.

A Text book of the Practice of Gynecology—For Practitioners and Students—By WILLIAM EASTERLY ASHTON, M.D., LL.D., Professor of Gynecology in the Medico-Chirurgical College, Philadelphia, etc. Philadelphia and London: W B Saunders Company, 1909. Fourth Edition, Revised and Enlarged. Pp 1099. 1058 new line drawings. Price not stated.

WHEN a book has, like this one under notice, passed through four editions in a little over 4½

years, it would seem to be almost a work of supererogation to review it, so well known and widely used must it have become

Among the principal changes and additions which have been embodied in this edition may be mentioned the treatment of erysipelas of the vulva by the local application of magnesium sulphate, the operative treatment of suppuration of the pelvic connective tissue and the question of immediate or deferred operation for intra-abdominal hæmorrhage in ectopic gestation which has been fully considered. The section on shock has been re-written, and that on peritonitis brought completely up to date. Additions have been made to the chapters on constipation and cystitis, and that on tuberculosis of the genital organs has been fully revised.

From this it will be seen that the author has spared no pains in order to make this edition thoroughly abreast of the times and a reliable guide to the profession.

A perusal of this work only confirms the favourable impression which we formed of the first edition, and we would again most strongly recommend it as being amongst the best and most up-to-date of the standard works on this subject.

The Nutrition of the Infant—By RALPH VINCENT, M.D. M.R.C.P., Senior Physician to the Infants Hospital, Westminster. Third Edition. Demy 8vo. Pp. xxii + 342. Illustrations 26 and one Coloured Plate. London: Baillière, Tindall and Cox, 1910.

THE latest edition of this work has been carefully revised and some useful additions made, the chief of which are a complete description of the practical details connected with the production of pure milk and its modifications and the most recent developments in substitute feeding as illustrated in the farm and milk laboratories of the Infants Hospital.

The author has also given the results of his special researches on the etiology of zymotic enteritis, which are most interesting and suggestive reading.

The clinical section has been carefully revised and typical cases of each disease have been given which will very considerably add to the value of the work.

These additions have greatly enhanced the utility of the book which can be highly recommended as one of the best works on substitute feeding and one that should be in the library of every medical practitioner who is interested in this subject.

Remedial Gymnastics for Heart Affections used at Bad-Nauheim—Being a translation of "Die gymnastik der herzleidenden." Von Dr. Med. Julius Hofman und Dr. Med. Ludwig Pohlman, Berlin und Bad Nauheim. By JOHN GEORGE GARSON, M.D. (Edin.), etc., Physician to

the Sanatoria and Bad Nauheim, Eversley, Hants. Pp. xvi + 128. Illustrations 51. London: Swan Sonnenschein and Co., 1909. Price 7s net.

THE use and importance of physical exercises in the treatment of certain forms of cardiac disease may certainly now be said to be an established fact, but hitherto the subject has scarcely been given the attention it deserves by the English speaking medical world.

This little book will, we are sure, be most welcome as giving very full and complete accounts, amply illustrated, of some of the chief physical exercises employed in the treatment of cardiac disease, and in addition to this it also contains chapters on the indications for and against gymnastic exercises, methods of controlling and testing the influence of the same and the different ways they may be applied, as well as a brief review of the question of diet and stimulants.

The book will be found to be exceedingly interesting and useful to those who may be desirous of testing the value of these methods.

The type is clear and distinct and the illustrations are numerous and satisfactory.

The translation has been well and carefully performed and the general "get up" of the work leaves little to be desired.

Emergencies of General Practice—By PERCY SARGENT, M.B., B.C., F.R.C.S., and ALFRED E. RUSSELL, M.D., F.R.C.P. Henry Frowde and Hodder and Stoughton, London. Price 15s net.

THIS book deals with the emergencies commonly met with, they are clearly described with the appropriate treatment. As a book to be read shortly before an examination it should prove of use to the senior student, but is too bulky a volume to be easily carried about by a practitioner. The medical portion is better than the surgical. The price is also high.

Elementary Physiology—By W. B. DRUMMOND. London: Edward Arnold, 1909.

THIS little volume is designed for the use of students in training as teachers and aims at 'developing in the student a health-conscience and a hygienic ideal.'

It may be admitted that a knowledge of elementary physiology is essential to a knowledge of hygiene. This book is especially useful to the (non-medical) teachers in schools, in that it pays particular attention to the peculiarities of childhood, and also devotes much space to physical training and in an excellent chapter the nervous system of children is well treated of.

Altogether it is a book in our opinion admirably adapted for use in all primary and secondary schools. We recommend the book to the notice of the Educational Department in India.

The Human Eye—By Dr K S MAIKANI

DR MAIKANI of Hyderabad, Sind, has written a practical little booklet on the Human Eye. It is intended for the general reader. It is clearly written and the advice given sound. We are glad to see that the intelligent author lends no support to the wild views of those who pretend that a senile cataract can be removed without operation.

We can recommend the little book to those for whom it is intended. Price Eight Annas.

Urgent Surgery—By FELIX LEJARS, Professor, Agrégé à la Faculté de Médecine de Paris. Translated from the sixth French Edition by William S. Dickie, F.R.C.S., Surgeon, North Riding Infirmary, Middlesbrough. Two volumes. Vol. I. Price 25s net. Bristol: John Wright & Sons, Ltd. London: Simkin, Marshall, Hamilton, Kent Co., Ltd.

THE fact that this book has run through six editions in ten years speaks for itself; it has also been translated into German, Spanish, Italian, Hungarian, Russian and Japanese, so may fairly claim to be cosmopolitan. We may also at once say that its perusal has given us great pleasure, not alone for the masterly way in which the subject has been handled, but also from its literary excellence.

This volume deals with the urgent surgery of the head, neck and trunk and covers the subject completely. The aim of the author has been to place before the reader in a practical manner the indications for and the technical details of the principal urgent operations and in this he has admirably succeeded. Of course, some of the procedures described demand a high degree of surgical skill, but the author is careful to say that "it is certainly not intended that they should all be attempted by anyone and in any surroundings." However, a knowledge of the indications for these urgent operations cannot fail to be helpful either to the young practitioner or to the man who is not in close touch with surgical practice.

The standard of excellence is so high that it is difficult to select any section for special mention, perhaps that on the abdomen is the best, the author is a strong advocate of the rule "when in doubt operate," with this we think the vast majority of surgeons agree. As regards appendicitis, the practice is "every case of acute appendicitis, ought to be operated on, the date alone of the operation may vary, in a certain number of cases it must be performed during the attack, but as often as possible during a quiescent stage."

There is practically little difference between the technique described and the usual English practice, judging mainly from the illustrations. Reverdin's needle of varying type is preferred for all kinds of work including intestinal suture. For exploration of the kidney an incision from the middle of the 12th rib obliquely

downwards to about the middle of the iliac crest is favoured. The results obtained by the electrical enema in some of the chronic obstructions and in paralytic ileus are highly spoken of.

The illustrations are excellent, the selection of typical cases interspersed throughout the text is a particularly happy one. The book will be of great value to many classes of practitioners and more particularly to Assistant Surgeons, either when they are House Surgeons or in independent charge of a dispensary, the indications for and the technical details of the operations being clearly laid down, any conflicting lines of treatment which would otherwise confuse the issue being omitted.

A Text book of Medical Treatment (arranged alphabetically)—By W. CALWILL, M.A., M.D., Royal Victoria Hospital, Belfast. Edward Arnold, London, 1910.

THE author of this new volume on medical treatment has not rushed hastily into print. The work is the offspring of twenty years' experience in teaching the principles as well as the application of modern therapeutical knowledge. His notes on the medical treatment of the cases occurring in the out-and-in-departments of a large hospital during these years have been amplified, systematised, corrected and brought up to date.

The result is the publication of a volume of very great importance and of great merit.

This work will prove to be exceedingly useful to the student and to the practitioner. It is founded on practical experience and many most valuable hints will be obtained from a perusal of the text.

As already stated, the subject-matter is dealt with alphabetically which is of great convenience in searching for information and enlightenment on any disease. Besides this, there is a very good index which will be found of great service to the busy practitioner.

The volume is richly endowed with a wealth of prescriptions which have been found serviceable.

A special word of praise is due to the author of the article on vaccine therapy, it is one of the clearest accounts we have so far read. The volume is handsomely produced and the paper and printing all that could be desired.

A Text-book of Physiology for Medical Students and Physicians—By W. H. HOWELL, Ph.D., M.D., LL.D., Professor of Physiology, John Hopkin's University, Baltimore. Third Edition, thoroughly Revised. Messrs W. B. Saunders Co., 1909.

It is only four years since Howell's Physiology made its appearance, and yet in that period three new editions and five reprints have been called for. Stronger evidence of the high merits and popularity of the volume could not well be demanded. In reviewing the first edition

we spoke of this physiology in the highest terms and anticipated for it a striking success. We have nothing but praise for this third edition which is well up to date, and gives a large amount of new material. We wish the volume continued success. It is without doubt one of the very best works on the subject at present on the market. We notice that the author includes a review of the recent work on metabolism and on the evidence afforded by natives of Bengal. An error in his reference has crept in when he assigns to McCabe the observations carried out in this country by Captain D. McCay, I.M.S.

The new Third Appendix to Squire's Pocket Companion

THIS little book marks the third of a series of Appendices to Squire's Pocket Companion, and also brings up-to-date the recently published 18th Edition of the larger Squire's Companion. These Appendices have now become a fixed feature of Squire's literary productions, and a regular demand has been established for them from all parts of the world.

The First Appendix was issued in 1905, and the second in 1906, the third bears the date of the current year. They are published primarily in the interests of the medical profession to whom they are supplied gratis on application. As the matter which they contain is supplementary also to the two books named above, they are also sent gratis on application to all who have purchased either the one book or the other.

The Third Appendix is a brief but concise review of the progress of Therapeutics and Pharmacy from 1908 to 1910. The complete and exhaustive review from 1899 to 1908 is to be found in the 18th Edition of Squire's Companion to the British Pharmacopœia (published by J. and A. Churchill, price 14/- net).

The monographs on Asiacetin, p. 6, Atoxyl, p. 9, Calcium Lactate, p. 12, Mercury Atoxylate, p. 33, Novocaine, p. 34, Paraphenylenediamine, p. 36. Amongst the abstracts of latest pharmaceutical literature are to be found the following—Syrupus Pruni Virginianæ, p. 38, Quinine Sulphate, p. 40, this article containing references to the papers read before the Seventh International Congress of Applied Chemistry on the Standards for the purity of Quinine Compounds, and to an important paper communicated to an evening meeting of the Pharmaceutical Society at the close of last year.

Amongst items of special interest from the therapeutical point of view may be noted the article on Scopolamine-Morphine anæsthesia, p. 46 *et seq.*, Sodium Acid Phosphate, p. 49.

The article on Standardisation on p. 54, records the transactions of the Pharmaceutical Section of the Seventh International Congress of Applied Chemistry, and gives a clear idea of

the present position of Chemical Standardisation.

The article on Stovaine, p. 58, embraces Dr. Jonnesco's recent improvement in the methods for producing general spinal anæsthesia.

On the last page of the Appendix is a notice of the forthcoming new Edition of Squire's Companion of the Pharmacopœias of Thirty of the London Hospitals, and a note on the new Edition of this book will also be found in Section B, p. 96. The 18th Edition of Squire's Companion to the British Pharmacopœia is referred to on pp. 76, 77 and 78.

The Pocket Clinical Guide—By JAMES BURNET, M.D. Edinburgh John Currie, 1910.

THE object of this little guide is to aid students and practitioners in carrying out the simple processes employed in every-day clinical work. No attempt has been made to cover the whole field of laboratory work, but the little book measuring only 4×3 inches and 141 pages contains a considerable amount of information on the urine, the blood, the sputum, the stomach contents, and the feces. It is sound and reliable.

Hints on Prescription Writing—By JAMES BURNET, M.D. Edinburgh John Currie, 1910.

THIS is the second and enlarged edition of a useful little paper backed pamphlet on a subject too much neglected by present day practitioners. It gives valuable hints on writing prescriptions both for examinations and in practice. It gives enough Latin Grammar to enable the practitioner not to make blunders in this elementary matter. There is a section on incompatibility on dosage, etc.

It should prove most useful to any senior student going in for his examination in *Materia Medica*.

MEDICAL SOCIETY

ASIATIC SOCIETY OF BENGAL (MEDICAL SECTION)

THE meeting was held on April 13th with Lieutenant-Colonel Crawford in the Chair. A Bengali child, aged 5, suffering from extreme cyanosis without any dyspnoea, under the care of Lieutenant-Colonel Calvert, was shown for him by Major L. Rogers as due to congenital heart disease, believed to be of the nature of an extensive deficiency of the inter-auricular septum, as there was an absence of all cardiac murmurs, such as occur in pulmonary unstenosis and deficient ventricular septum.

Major C. R. Stevens showed the following cases—

1. A child in whom a large hydronephrosis had been removed by abdominal section with a satisfactory result.

2 A patient from whom a dentigerous cyst had been removed. On sections being cut in the pathological department, the structure of a columnar celled cylindroma was found, constituting a rare form of tumour of the jaw.

3 A patient from whom an extensive sarcoma of the soft palate had been removed.

Lieutenant Colonel Pilgrim showed a case of cyst of the epiglottis.

Captain Megaw showed a specimen of lymphocele of the spermatic cord containing an adult filarial worm.

Dr G C Chatterji read notes of a case from the Medical College *post-mortem* room of broncho-pneumonia and suppuration in the bronchial lymphatic glands and a few minute abscesses on the surface of the liver, all containing the pneumo-bacillus of Friedlander.

SPECIAL ARTICLE

BERI BERI AND A LACK OF PHOSPHORUS

We may hope that research is at last coming near the secret of the origin of beri-beri. It is known to our readers that Capt E D W Greig, I.M.S., a very able investigator, is on special duty in Calcutta, inquiring into the origin and nature of the beri-beri or epidemic dropsy which has been prevalent for several years past in that city and in many other parts of Bengal. The question of the identity or otherwise of these two diseases will also, we expect, be settled by Capt Greig's investigations.

At present, however, we only propose to lay before our readers a résumé of the work done* in the admirable Institute for Medical Research of the Federated Malay States. Dr H Fraser, the Director, and Dr A T Stanton, the Bacteriologist of that Institute, have recently published a study, which is remarkable and in our opinion goes far to solve the mystery of beri-beri.

The connection between beri-beri and rice has long been known and has been very frequently referred to in our columns. It was most definitely formulated by Dr L Braddon in the *Medical Archives* of the Federated Malay States in the year 1901. Enikman in his monumental work, too little known because written in Dutch in 1896, saw clearly that there was a definite poison in some kinds of rice, and also that there was "something" in the pericarp which served as an antidote.

In connection with rice a few facts were certain first, that beri-beri never followed the use of rice prepared in the method in use in Bengal,

that it occasionally was associated with the use of the clean-looking white rice imported from Rangoon, and used to a considerable extent in Bengal within the past dozen years. It also appears that the use of rice prepared in Siam and the further East is still more frequently associated with outbreaks of beri-beri. It is well known that in Bengal rice is prepared from the paddy by first soaking the paddy in water and boiling it, then sun-drying it. This sun-dried parboiled rice is next put through the *dhenki*, that is, it is roughly husked by this primitive, but as will appear all sufficient machine. The rice thus husked still retains a large amount of the pericarp or inner sheath of the rice grain and is brownish or red in colour. The use of this rice is not followed by beri-beri.

The other rice, Burma or further East rice, is beautifully white, one can distinguish its peculiar whiteness as one passes the shops in a bazar. It is deprived of the pericarp. The Burma rice when cooked by Bengal domestic methods is never so nice as the country rice, it is sticky and gummy and the boiled grains are not so distinct, separate and dry, as in well prepared country rice.

Now to turn to the study by Drs Fraser and Stanton.

They did a large number of experiments on feeding fowls on rice, and they state that fowls fed on rice which had been associated with beri-beri outbreaks in man, will develop a polyneuritis, very similar or identical with the neuritis of beri-beri.

We may quote the following table of the chemical analysis of three varieties of rice —

	White rice, Siam	White rice Rangoon	Parboiled rice
Protein	9.07	8.41	9.48
Fats	0.17	0.81	0.51
Carbohydrates	90.11	89.90	89.12
Ash	0.65	0.85	0.89

This shows that the only marked difference is in the percentage of fats and in this element the parboiled (or the Bengal method) rice is deficient. A deficiency in fat will therefore not explain beri-beri.

We now quote the following interesting experiments —

By a method devised in this laboratory, sections of the various rice grains were obtained of sufficient thinness to permit the examination in detail of their histological characters. By suitable staining methods it was shown that in parboiled rice remnants of the pericarp remained attached to the rice grain whereas in Siam rice the pericarp and the layers subjacent to it had been polished away. It would appear that parboiling renders the grain tough and non friable, in consequence the peripheral layers cannot be removed so readily as in the untreated grain. It was further demonstrated that the layers so retained in parboiled rice contained the most of the aleurone and oily material present in rice grains. Rice as prepared by

* (1) The Etiology of Beri beri, Government Printing Office, Kuala Lumpur, F. M. S. (2) An Inquiry into Etiology of Beri beri by H. Fraser and A. T. Stanton, Singapore, Kelly and Walsh, Ltd. Price 3s 6d. 1909.

primitive methods (Malay rice) was similarly examined, and, as might have been expected from the pounding to which this rice had been subjected, parts of the pericarp and subjacent layers were chipped off to a varying extent, but on the whole these layers were retained to a greater extent than is the case with white rice.

Early in the course of the experiments the observation was made that parboiled rice subjected to exhaustion with hot alcohol and thereafter carefully dried in the sun to free it from alcohol, produced when fed to fowls a disease indistinguishable from that observed in fowls fed on white rice, though such parboiled rice in its original state was incapable of producing this result, however long continued.

The association of the observations referred to in the two preceding paragraphs seemed to point a way to a solution of the problem. It had been shown that white rice as prepared in the mills of this country produced the same results in fowls as white rice known to have been associated with beri beri. If now a substance or substances residing in the outer layers which are milled away in white rice and are retained in parboiled rice could be added to white rice and so prevent its harmful effects, it was conceived that the nutritive hypothesis would thereby be supported.

In accordance with this idea the following experiments were initiated. A rice mill in Singapore was visited and there was obtained (A) a quantity of the original padi then being milled—in this case a partially husked padi imported from Indo China, (B) a quantity of the finished product as it came from the machine, (C) a quantity of the "polishings" from the same rice. Polishings, it may be stated, consist of the outer layers of the seed removed in the process of making the rice white. The miller estimates that 40 parts of padi produce 25 parts of white rice, 5 parts of polishings and 10 parts of husk. The polishings are sold as food for cattle and the husks are burned as fuel in the mill.

Experiment A—Twelve fowls were fed on padi for five weeks.

Result All remained healthy.

Experiment B—Twelve fowls were fed on the white rice alone.

Result In five weeks six had developed polyneuritis, two were dead, one having suffered from polyneuritis and one from a disease other than polyneuritis, five fowls remained healthy.

Experiment C—Twelve fowls were fed on rice taken daily from the same bags as that used in Experiment B, in addition, polishings in the form of emulsion, in amount equal to that milled from the quantity of rice consumed, were fed by a tube passed into the crop daily. This quantity was subsequently diminished week by week until only 3 grammes of polishings per kilogramme of body weight were being given daily. This amount sufficed to maintain the fowls in health and in constant weight.

Result The experiment was continued for seven weeks and all remained healthy.

This result was subsequently confirmed for rice from known outbreaks of beri beri.

It will be understood that these three experiments were in progress simultaneously, and that the fowls were in all respects under identical conditions.

Experiment D—Part of the original padi was taken and milled by a Malay woman by primitive methods into the finished product as eaten by Malays. Eight fowls, fed for five weeks on the rice prepared from the original padi by the Malay method, remained healthy. Eight fowls only were used for this experiment as the quantity of padi then remaining sufficed only for this number for the time it was estimated the experiment would last.

Attention is drawn to the important point that the products used in these experiments were all derived from the same lot of padi, and the results force us to the conclusion that it is the milling process which is essen-

tially at fault, the polishing of white rice removes from the seed some substance or substances essential to the maintenance of the normal nutrition of nerve tissues.

To elucidate the point as to whether rice when freshly milled is less harmful than that which has become stale, an assistant was stationed in Singapore, who sent daily to the laboratory by the most expeditious route a quantity of rice milled on the day of despatch. Twelve fowls were fed on this rice and five developed polyneuritis in four weeks. This result, which is similar to that obtained in other experiments, when fowls were fed on rice milled from four weeks to two years previously, disposes of the suggestion that the harmfulness of white rice is due to its staleness or to the development in it of a poisonous substance or substances subsequently to its being milled. The root of the evil lies in the milling process itself. The result further indicates the inadequacy of preventive measures founded on the poison hypothesis in regard to the use of freshly milled rice.

An experiment was now planned to determine whether a parboiled rice proved harmless could by exhaustion with hot alcohol be reduced to such a condition that it would produce polyneuritis when fed to fowls, and whether the substances so extracted when fed to fowls with a white rice proved harmful could prevent the development of polyneuritis. For this purpose parboiled rice was repeatedly exhausted with hot alcohol. The alcoholic extracts were concentrated *in vacuo* at a temperature of 52° C, freed from alcohol and the residue emulsified in distilled water. Experiments with these products showed that fowls fed on the exhausted parboiled rice contracted polyneuritis, and that fowls fed on a white rice proved harmful by previous experiment remained healthy if they received in addition a quantity of the extract.

Having by these and other experiments, the details of which are omitted so as not to encumber the argument, arrived at the point when it was clear that the essential cause of beri beri was to be sought for in a nutritive defect, further efforts were made to determine by chemical methods precise differences between various rice. Such differences, if they are to furnish an adequate explanation for the origin of beri beri, must be in accordance with clinical observations and the experimental results in fowls.

Acting on a suggestion made to one of us by Dr F. W. Mott, F.R.S., an attempt was made to estimate the lipoids of the different rices, but as the time element enters so largely into these estimations and our experiments with fowls were proceeding rapidly, it was decided to determine the amount of phosphorus calculated as phosphorus pentoxide (P_2O_5) in the various rices in use. It speedily became apparent from these analyses that the phosphorus content of the different rices varied with their known harmful influence, the less phosphorus contained in a given rice the more liable was it to produce polyneuritis in fowls, conversely, the higher the phosphorus content, the less likely was it to produce polyneuritis.

Thus a sample of parboiled rice which was fed to fowls over many weeks all remaining healthy was found to contain 469 per cent. P_2O_5 and a sample of white rice which produced polyneuritis in fowls yielded 277 per cent P_2O_5 . The rice polishings employed in Experiment C yielded 4.2 per cent P_2O_5 .

From a series of observations it was determined that a fowl under the conditions of our experiments weighing from 1,200 to 1,400 grammes required 60 grammes of parboiled rice daily to maintain it in health and in nutritive equilibrium. In Experiment C it was determined experimentally, the chemical analysis being then unknown, that when fed on white rice a fowl of this weight required the addition of about 3.5 grammes of polishings to preserve it in nutritive equilibrium. From the data given above it may readily be calculated what amount of polishings added to white

rice is required to raise the phosphorus content of the white rice diet to that of the parboiled rice diet. Thus

60 grammes of parboiled rice	3,120 grms P_2O_5
60 " " white " "	1,662 " "
Difference	1,458 " P_2O_5

Polishings contain 4.2 per cent phosphorus pentoxide.

Calculated from the phosphorus content therefore 3.47 grammes of polishings added to the 60 grammes of white rice supplied to a fowl of 1,200—1,400 grammes weight should preserve it in nutritive equilibrium. From experimental observation 3.5 grammes of polishings had been shown to accomplish this result.

There is thus afforded striking testimony to the value of phosphorus estimation as an indicator of the likelihood of a given rice to produce polyneuritis when fed to fowls, or, following the argument, the likelihood of its producing beri beri when forming the staple in the diet of man.

SUMMARY

1. Beri beri is a disorder of nutrition and, as it occurs in this country, is associated with a diet in which white rice is the principal constituent.

2. White rice as produced in the mills here commonly makes default in respect of some substance or substances essential for the maintenance of the normal nutrition of nervous tissues. These substances exist in adequate amount in the original grain and in superabundant amount in the polishings from white rice.

3. The estimation in terms of phosphorus pentoxide of the total phosphorus present in a given rice may be used as an indicator of the beri beri producing power of such rice when forming the staple of a diet in man.

The prevention of beri beri in this country will be achieved by substituting for the ordinary white rice, a rice in which the polishing process has been omitted or carried out to a minimal extent, or by the addition to a white rice diet of articles rich in those substances in which such white rice now makes default. One such article which is cheap and may readily be obtained is the polishings from white rice.

The use of parboiled rice as suggested by Dr. Braddon will achieve a like result, provided that the polishing process is not carried beyond the limited extent now customary.

The above experiments are extremely interesting, and it is difficult to resist the conclusions so logically drawn.

A point of importance, however, is not touched upon, and that is the share that rice has in the dietaries of the people liable to beri beri.

In many Bengal jails* we have, within the past dozen years, used Burma rice, and we never have had an outbreak of beri beri or of epidemic dropsy. This has in a recent article in our columns (*I M G*, April, p. 123) been attributed to the excellent method of keeping rice in good condition by mixing it with lime which is washed out before cooking, but this practice, admirable in keeping rice free from weevils, is by no means universal, and in many jails Burma rice (not so treated) has been used exclusively and for months at a time without any bad effect.

In our opinion the researches of Drs. Fraser and Stanton give the clue to this exemption, in the first place those observers have stated that

* The use of Burma rice in Bengal jails dates from the scarcity year of 1897, it is usually cheaper than country rice and therefore being harmless and also wholesome it was purchased.

Burma (Rangoon) rice is not so bad as Siam rice in producing beri beri, and secondly, we consider that the phosphorus is liberally supplied in the pulses (*dals*) which are part of the Bengal jails dietary and in the wheat or maize which constitute one-half of the dietary of prisoners in the Bihar Districts of Bengal.

The moral is obvious: where rice is only used in small quantities, the use of Siam or other white rice is harmless, the phosphorus lacking in it is supplied in the meat or other substances used in the dietary. If Siam or even Rangoon rice is used as the main food of a community, it must be supplemented by other food containing a good percentage of phosphorus, and lastly, these observations show that the more primitive methods of preparing rice, when rice is the main food of a people, are the best, and in Bengal and other progressive parts of India it would be well to discourage the use of rice mills and machinery and stick to the primitive methods of pounding in a hollowed block, or the use of the equally primitive *denku*.

Correspondence

BRITISH MEDICAL ASSOCIATION MEETING

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—The Colonial Reception Committee is particularly desirous to bring the Annual Meeting to be held in London in July next, to the notice of all medical practitioners residing in the Dominions beyond the seas, as affording them an unusual opportunity of visiting London both for the scientific purposes of the meeting and also for social intercourse with their fellow practitioners throughout the Empire.

The Colonial Reception Committee in conjunction with the Colonial Committee of the Central Council, desires, through the medium of your Journal, to extend a very cordial invitation personally to all medical practitioners in the Colonies, and assures them of a hearty welcome to the Annual Meeting and to the capital of the Empire.

Great efforts are being made by these two committees to arrange such entertainments as it is hoped will meet with the approval of their colonial brethren and so add to the success of the meeting of 1910.

We are, etc.,
EDMUND OWEN, } Of the
Chairman } Colonial
DONALD ARMOUR, } Reception
Honorary Secretary } Committee

129, Strand, W.C.

EXPERIMENTS ON THE INTRAVENOUS INJECTION OF PERMANGANATES FOR SNAKE BITE

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR—From a press note it appears that the Bombay Laboratory has confirmed the experiments of Sir Joseph Fayrer of over thirty years ago, and some I mentioned at the Bombay Congress, to the effect that intravenous injections of permanganate of potash are both useless and dangerous in the treatment of snake bite, so the following data may be of interest. In 1901, I found intravenous injections of weak solutions of this salt to be too poisonous for use in the treatment of snake bite while the sodium salt was also found to be unsuitable. More recently I have experimented with other less poisonous oxidising agents. Thus, although 5 milligrammes of calcium permanganate intravenously killed pigeons rapidly with convulsions, yet I have repeatedly safely injected up to 3 milligrammes. As 0.5 mgm. rendered inert four lethal doses of cobra venom when the mixture was given intravenously, safe intravenous doses of this salt may destroy over 20 lethal doses for these birds. It was not, however, to be expected that

after a fatal dose of venom had been given subcutaneously, that this salt injected intravenously would exert any selective action on the minute amount of snake poison in the circulation, as the permanganate would be rapidly rendered inert by acting on the albuminous substances of the blood. Further experiments were carried out to test this, using non-lethal intravenous doses of calcium permanganate with negative results, the treated birds dying in about the same time as the controls. Another oxidising agent, persulphate of soda, was found to be safe in 40 mgm doses intravenously in pigeons, but even this amount failed to destroy a single lethal dose of cobra venom. As I anticipated, I have therefore failed to find any drug to safely neutralise venom within the circulating blood. Subcutaneous permanganate solutions were also shown many years ago by both Fayer and Vincent Richards to be of little use in snake bite. Of course neither these experiments nor the native Bombay ones, affect in the smallest degree the value of Sir Lauder Brunton's treatment of snake bite by local incision and direct application of permanganate crystals, which must prove efficacious in direct proportion to the rapidity after the bite and the thoroughness of its use.

Yours, etc
LEONARD ROGERS

CALCUTTA,
18th May 1910

MEDICAL EDUCATION IN INDIA

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—Medical education is obtainable in India principally at the state institutions of two grades, namely, at the medical colleges preparing students for the University medical degrees, and at the medical schools training a very useful class of qualified assistants. The former are affiliated to the Indian Universities, and their curricula differ little as they are fixed almost on the lines of those prescribed by some of the leading British Universities, while the standard of preliminary education required by all is in accordance with the regulations of the General Medical Council of Great Britain. The teaching at these is also of an admittedly superior order imparted by a very competent staff of professors recruited from amongst the members of the Indian Medical Service. The selection for these important appointments, again, has necessarily a wider scope, the service being an imperial one, and thus it is always possible to choose the best men for particular branches of teaching. The case of the latter is, however, entirely different. Not being required to conform to the rules of any governing educational body there is naturally a want of uniformity in their curricula. For instance, one school treats say, Midwifery as an important subject, another considers extensive courses of psychiatry and pathology as indispensable, whilst a third is perhaps more keen about the diseases of the organs of special sense than an elementary course of physiology or hygiene. Again, the system of qualifying examinations in vogue at some of them can hardly be said to fairly represent either the quality of teaching or the merits of the pupils. Further, as the tutorial staff is recruited from amongst the members of the different provincial medical services the choice has to be limited to the cadre of the local Assistant Surgeons. The selection is as a rule made on the recommendations of the Civil Surgeons, and sometimes strongly enough on the representations of the local religious or quasi-political bodies which must have their infallible, say even on the subject of teaching of the medical science, though it has not the remotest reference to any article of faith whatever. It is therefore no wonder that at times Assistant Surgeons thus translated from the charge of dispensaries find themselves quite at sea when asked to teach subjects requiring special clinical experience, a fair knowledge of scientific technique or an amount of manipulative skill above the average. It is highly important that the class of qualified men turned out of these medical schools should be very well grounded at least in elementary medical science as in the majority of instances, and particularly in the mofussil, where no consultation is available, they are the first to come across diseases in their earliest stages. The teaching staff should therefore be a well informed and efficient one. But to ensure efficiency an attempt should primarily be made to devise a uniform and practically useful standard of education, and all the schools brought under the disciplinary control of the Director General of the Indian Medical Service, and above all, a separate medical educational service, entirely distinct from that of the civil assistant surgeons, should be created comprising the lecturers at the medical schools and the assistant professors, demonstrators and clinical assistants at the medical colleges, who can be transferred from the junior appointments at some to the senior appointments at others with a view to consistently maintain an efficient standard of teaching, specially of the allied subjects, at all. As the standard of preliminary education has now been raised to the University matriculation for admission to these

schools, and the medium of teaching is everywhere English, there cannot, I believe be any difficulty in the way of some such useful departure.

April 1910

"SPERO MELIORA"

[We do not know to what extent the above is true, but as representing the opinion of one of the lecturing staff at a vernacular medical school, we publish it.—ED., I. M. G.]

URTICARIA AND MALARIA

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—The following case may be added to those described by Captain Wells in the April number of this journal.

A young European female adult, usually healthy, had on two or three occasions complained of pain in the epigastrium and gall bladder region and had been examined by me. A provisional diagnosis of stone in the gall bladder was made. Each attack was of short duration, and was treated by castor oil and salines. In the middle of March last, I was called to see a severe attack. The patient was rolling on the floor in agony, the site of greatest pain being about three fingers' breadth below the xyphoid cartilage. There was a cold sweat on the hands and brow and the patient vomited. I saw her within five minutes of the commencement of the attack. By the time a mustard plaster had been applied to the epigastrium a new development appeared. The abdominal pain became less and less severe, but instead a most violent pain was experienced in the middle line of the neck half way between the prominence of the thyroid cartilage and the top of the sternal notch. The patient shrieked out, "My throat, my throat," and clutched at it with her hands. At the same time the skin of the front of the neck began to swell and became a brilliant scarlet, just like the swelling and redness one sees from the stings of venomous animals and plants. This swelling and redness rapidly spread to the whole of the face which became swollen, coarse and beefy, with the eyes nearly closed. The upper part of the chest also became bright red. The great pain in the throat lasted for from half to three quarters of an hour. I was somewhat anxious lest my patient should develop oedema of the glottis, but the breathing remained quite unobstructed, although the patient used to hold her breath and strain with agony. The interior of the mouth and the tongue remained unaffected.

Within an hour of the commencement the most distressing symptoms of pain and swelling had nearly subsided, though some redness and swelling of the face lasted for half a day longer, but the temperature began to rise and there were shiverings. This girl had no fever for I think more than a year, but she had had malarial fever previously to that. It was not likely that she could have contracted a fresh malaria in Etawah so early in the year. But I have noticed two things about the Indian malarial parasite. One is that he is a very persistent animal, easy enough to rout and vanquish in pitched battle, but very hard to totally destroy, though he dies in his billions there are usually some hardy individuals who avoid slaughter, and skulking somewhere in the backwoods of the economy, bide their time. And that brings me to the second point. That time, it seems to me, is very often the beginning of the hot weather. The paralyzing cold of winter over, the female Anopheline is again at work, offering to dominant malarial anæmia free passage to a more generous host. So they multiply and spread themselves in the blood once more. I have seen many cases of this spring malaria which is, I think, a manifestation of the means by which the malarial parasite maintains itself from year to year through seasons when there are no Anopheles. What the mechanism is within the body of the host by which this activity on the part of the parasite is awakened it would be very interesting and useful to know. That it may be made to work by other causes than the change of weather we all know. The ultimate mechanism is it affects the malarial parasite in all cases probably the same. But it can certainly be said that the cause, the ultimate cause, does not produce urticaria else would urticaria be common in malarial attacks, whereas it is exceedingly rare.

Bearing these considerations in mind and having to make a diagnosis I took a couple of slides of the blood and stained them with Louis Jenner stain in methyl alcohol. My stain was a very good one having been made up exactly a year and being thoroughly saturated. I have always found the eosin-methylene blue stains work best when they are in old solution. I got the two most perfect blood films I have ever seen, with most beautiful contrast staining. They showed the malarial parasite. They were not very numerous. Each one occupied the greater part of a red blood corpuscle, stained a Cambridge blue and contained an exceedingly large number of so called pigment granules. They were too numerous to count accurately, but must have numbered over forty in each parasite, and were uniform in size and spindle shaped. There were no crescents. The blood elements were normal, but I could not find a specimen of a coarse grained eosinophile.

Castor oil and quinine promptly routed the enemy so that next morning there were no signs of fever, urticaria or pain. Of this case two things can be said with certainty, namely, that there was malaria and that there was urticaria. The malaria is proved by the presence of the parasite, the urticaria by the rapidly appearing and disappearing swelling and redness of the skin. What was the connection between the two, if any, I cannot say. It may be merely coincidence. Urticaria and malaria are both sufficiently common that they should occasionally occur independently at the same time. On the other hand the condition which caused the outbreak of urticaria may have also been such as to set in action the thing which wakes up the malarial parasite. If so, it is a rare event, and must work in a roundabout way and cannot be directly the cause of both malaria and urticaria.

The urticarial symptoms themselves were both interesting and unusual. It seems to be most probable now that this girl has not got gall stones, but that her severe attacks of pain simulating gall stone colic or pyloric spasm are due to an urticarial crisis affecting the gastro duodenal region, during the last attack the venue shifted higher up and I think the pain in the neck was due to a spasm or swelling in the upper end of the oesophagus. That urticaria is caused by the local action of a toxin of the albumose variety seems to be the most hopeful hypothesis to work on at present, and we shall probably know more about it when the bio chemical physicists have cleared away some of the jungle surrounding the subject.

Yours, etc.,

W E McKECHNIE

Capt., I M S

April 1910

VACCINATION IN INDIA

To the Editor of "THE INDIAN MEDICAL GAZETTE"

Dated Myaungmya, the 11th April 1910

SIR,—In the *British Medical Journal*, 26th February 1910, Lieutenant Colonel Andrew Buchanan, I M S, has adduced some valuable evidence in favour of vaccination and has appealed to the Anti Vaccination party to ascertain by personal observation or enquiry, what are the results when vaccination has been neglected, before spreading abroad in India pernicious literature in which vaccination is strongly condemned. In an editorial on page 525 of that journal it is stated in reference to this action of the National Anti Vaccination League that there are indications that India is threatened with a danger the consequences of which might easily prove more disastrous than either sedition or revolutionary agitations. Colonel Andrew Buchanan has rightly observed that, if the old men in villages in India, which previously had been devastated by small pox were asked what are the greatest boons which have been conferred on them by the British Government, they will reply first, security of life and property, and secondly, the prevention of small pox by vaccination. These conclusions have been arrived at by personal experience and commonsense. In the *British Medical Journal*, dated 16th July 1904, I contributed an article on "the efficacy of vaccination, tested by inoculation and small pox." It would take up too much valuable space to quote the article in *extenso*.

Dr Andrew Balfour on page 216 of his supplement to the third Report of the Wellcome Research Laboratories has abstracted the principal points and commented on them as follows—

"Fink supplies some striking and interesting evidence in favour of vaccination in Burma. He noted that it was a common experience when small pox is epidemic to find the local medicine man inoculating all children, who have not been protected by a previous attack of the disease. The method consisted in selecting a mild case, removing the scabs off the pustule, grinding these scabs down to a fine powder, mixing with water, and injecting some of the mixture into the forearm or rubbing it into open abrasions."

"In a village in the Pkokekku District in Burma, where small pox had broken out, 59 persons had been attacked, 22 of these mainly children, had got the disease by infection, and the rest viz., 37 by inoculation. Four deaths occurred among the children who had not been inoculated."

"After personal experience of each child vaccinated in 1900 and 1901 and also of all those inoculated, Fink observed that not a single child successfully vaccinated a year or two previously got small pox either by infection or by inoculation. His figures are worth quoting—

Number of children successfully vaccinated in	1900 & 1901—	144
Number successfully vaccinated inoculated without result		123
Number successfully vaccinated and have resisted infection, but were not inoculated —		21"

In conclusion I wrote as follows—

In Burma, as in some parts of this country (Great Britain), vaccination is not popular and such was the attitude of the majority in the Leyamah village till the people had satisfied themselves by as severe a test as possible. The herdman admitted that he was fully convinced of the efficacy of vaccination, and that it was in many respects better than the method of inoculation practised by them. It was very gratifying to find that a poor uneducated man, such as this had commonsense enough to weigh the evidence he had before him and to come to a right conclusion on so important a subject. His sense of justice was in striking contrast to that of a European lady, an anti vaccinator, who had no arguments in support of her contention, but merely said to me that she did not believe in vaccination because her brother Joe did not. I may add that brother Joe was at the time in England and his sister, the lady referred to, in Pkokekku where annually there were epidemic outbreaks of small pox.

Readers of *Punch* will remember what the shade of Jenner is reported to have said when at the Jenner Centenary it was proposed to use a memorial monument in Trafalgar Square, but the Anti vaccinationists opposed the granting of the site

"England, ingratitude still runs
The escutcheon of the brave and free
I saved you many million spots
And yet you grudge one spot to me"

What alas! would the shade of Jenner say if the pernicious efforts of the Anti Vaccination League were successful in India and vaccination actively opposed? It is not 'England' which is to blame, but "brother Joe" *et hoc genus omne*, and it is well that Indians should know that these represent a class who will neither honestly observe and enquire, nor will they candidly admit, from the evidence that has already been produced, undoubted efficacy of vaccination. The Leyamah herdman and the old men referred to by Colonel Buchanan know better than to believe what "brother Joe" may have to say but there are younger generations who know not perhaps the ravages of small pox and are bent on resisting everything British. It is to be sincerely hoped that the Anti vaccination movement in India will not be successful.

Yours, etc.,

LAWRENCE G FINK,

M B C M (Edin.)

Civil Surgeon,

Myaungmya, Burma

'FOUR COMMON SURGICAL OPERATIONS IN INDIA'

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—Major Gabbett I M S, of the Madras Hospital, has managed to find time to write a useful little work on "Four common surgical operations in India" in spite of his enormous work both in and out of the Hospital and the Medical College. He is, no doubt, as the Senior Surgeon of the Madras Hospital, best qualified to write such a book which will be welcome to many a man who is called upon to perform responsible duties in civil hospitals in India for which he has not had the proper training. A perusal of this book will no doubt supply him with useful hints, although "Confidence and skill can only be obtained by experience" in the words of the author.

Major Gabbett is quite outspoken when he says "Let your business principle be cast down." I am afraid he must have been "had" on several occasions like myself, and I quite endorse his statements, although I find very difficult at times to carry them out in actual practice. After the work is satisfactorily completed one has to apply the long forceps to extract the cish. With regard to his hernia operations, I must say that I differ from him in one particular point. I consider the approximation of the conjoint tendon to Poupart's ligament a necessary adjunct to the radical cure. Whether the hernia is congenital or acquired there is always a weak spot in the abdominal wall which requires strengthening if Nature's methods are to be followed. In all my hernia operations I have invariably practised this method without any recurrence so far as I know of. The cord is left in situ without any displacement as in Fergusson's modification of Bassini's operation. The operation Major Gabbett describes is evidently his own. Simple ligaturing of the neck of the sac and excising the rest of it without fixing the conjoint tendon to Poupart's ligament is not enough for a radical operation. In old standing hernias the use of a filagree is no doubt essential to secure strengthening of the abdominal wall.

The after treatment is as important as the operation itself. The patient is given sips of hot water and nutrient enemata on the day of the operation. The same night a dose of calomel (grs i) is given by the mouth irrespective of the contents of the heimal sac. If bowels have not moved before the following morning a dose of salt and pepper mint water is given to hasten the evacuation of the bowels. After the bowels move the patient is fed by the mouth a milk and broth for four or five days, and is given daily warm water enemata to avoid distension of the bowels and unnecessary straining at stools. If one study the fancies of these patients in the point of view of their diets we may have to diet them on raggi hills as most of the patients in Mysore live on raggi. After the fourth or fifth day the patient is fed on the ordinary hospital diet which consists of rice and curry. The sutures are removed on the tenth day and the patient is allowed to sit up in bed for a week after the removal of the sutures and is then allowed to walk about in the ward. He is usually discharged after the third week. In my opinion the patient should not be allowed heavy work for at least six months after the operation, especially so in the case of a cooly.

With regard to his hydrocele operations, I have only one word to say. Let your incision be as high as possible in the uncorrugated part of the scrotum. The corrugated scrotal tissue is difficult to thoroughly sterilize owing to the nature of the pits. In extroversion of the sac a higher incision serves you just as well as the lower incision over the middle two thirds of the long axis of the tumour. I always use a cutgut stitch to keep the sac everted and to prevent it slipping back into its original position. This is a useful safeguard especially in large sacs. The cord must not be twisted while replacing the testicle. In my earlier cases a fresh hydrocele formed because I did not use the stitch to hold the everted sac in position. Myo Gabbett has left out another operation which is so commonly performed in India, I mean urethrotomy for stricture of the male urethra. This operation is more widely performed than even herniotomies and operations for hydrocele and elephantiasis of the scrotum. The cases of strictures we get in this country with so many scrotal and penile fistulae are unknown in Europe. Most of these cases require external urethrotomy. Wheelhouse's method is by far the best and the safest operation. But one often meets with cases where the urethra from the meatus down to the spongy portion is obliterated, and in such cases there is no chance of passing the Wheelhouse's sound to divide the stricture. In such cases I always make the usual incision in the perineum and expose the urethra as it curves under the pubic arch through the opening in the triangular ligament. You can always roll it between your finger and the pubic arch. Having defined the urethra a longitudinal incision is made into it as far as the muscular portion. A female catheter is passed into the bladder through this opening and is retained there for four days after which it is removed and the wound allowed to granulate. Once a week a bougie is passed to keep the canal patent. In cases where the urethra from the meatus down to the spongy portion is closed up, there is no chance of passing the sound afterwards to keep the canal patent. In such cases the best procedure will be to dissect out the urethra, to divide it across and to stitch the proximal end to the skin in the perineum as one does in Peirce Gould's amputation of the penis for malignant diseases.

I remain, Sir,
Yours faithfully,

BANGALORE,
12th April 1910

H B MYLVAGANAM,
FRCS (Eng),
Surgeon to Victoria Hospital

BOTTLE IN RECTUM

To the Editor of 'THE INDIAN MEDICAL GAZETTE'

SIR,—Major Crawford's case of a bottle in the rectum reminds me of a similar one in the Rangoon General Hospital a good many years ago in the person of an elderly Burman. Great difficulty was experienced by the Surgeon in charge in its extraction, and during this it was broken. I believe the patient made a good recovery. The bottle was an ordinary pint champagne shaped. No information whatever could be obtained as to how it got there.

For many years this case served me as a useful weapon against hospital assistants who failed to make a well indicated rectal examination.

Yours, etc,
C DUER, FRCS,
MAJOR, I M S

MAY 10

"TROPO RATINE"

To the Editor of "THE INDIAN MEDICAL GAZETTE"
SIR,—Will you kindly permit me through the medium of your columns to enquire what experiences others have had with the above mentioned rat exterminator, as sold by The Ratin Bacteriological Laboratory, 17, Grace Church Street, London, E C 2. Here in Persia, after thorough and carefully conducted experiments on captive rats, it has been found absolutely useless.

AGRI RESEARCH INST,
PUSA, BEHAR,
20th April 1910

Yours, etc,
R KEELAN,
Military Asst Surgeon

[Will anyone who has used this substance give us their opinion?—ED, I M G]

LITHOTRITY AND LITHOLAPAXY

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I would like to say a word in regard to Major Duer's proposal as put forward in his letter in your November number to use the word Lithotrity to designate what we now describe by Litholapaxy—a suitable and definite word for a definite surgical operation is always to be desired but not always easy to find and many Greek and Latin hybrids may be useful but are otherwise deplorable, in the case in question. I do think that the word Litholapaxy, which has a world wide and definite meaning confined to one distinct surgical operation, is certainly a better word when compared with Lithotrity which, if it does supplant the newer word Litholapaxy, will have the great disadvantage of meaning more than one thing and for that reason alone should be kept in its old place.

Nothing could be better than Colonel Keegan's letter on this subject, in your April number, in which he fully and clearly goes into the whole matter and with which I entirely concur.

I certainly think that to go back to the word Lithotrity, and to make it mean what is now known as Litholapaxy and which is something quite distinct and is an operation more recent and advanced, would be both confusing and retrograde. Terminological exactitude should be attained where possible, and where it cannot be had, the best must be made of what we have and this we have in Litholapaxy, which designates a definite surgical operation, whereas Lithotrity refers to another and quite different and obsolete procedure.

JAIPUR,
29th April 1910

Yours, etc,
P DURRELL PANK,
LT COL, I M S

[We entirely agree with Colonel Durrell Pank's opinion, and we hope, that now he is retired he will occasionally give us of his experience in operations for stone and cataract—ED, I M G]

Service Notes

THE April Army List is much behind hand as regards the higher ranks of the I M S. Of the 21 places on the selected list for Bengal only 19 names are given, to which we may, in anticipation, add the names of Lieutenant Colonels Leslie and F J Drury. Bombay has only six names instead of nine, and Madras, which should have eleven names, has only ten. With retirements and promotions this list should appear much altered in the July Army List.

THE promotion of the Director General, I M S, to be Surgeon General is gazetted with effect from 1st January 1910.

THE retirement of Lieutenant Colonel J P Barry since deceased is gazetted from 8th December. He entered the I M S in 1879, after graduating B A, M B, etc, at Trinity Dublin. He served on the Bombay side, and was well known as a traveller and writer on the near East.

LIEUTENANT J G B SHAND, I M S, was appointed to be Residency Surgeon Baroda, in addition to his other duties from 12th April 1910.

LIEUTENANT COLONEL D B SIFACRE, I M S, is gazetted to retire from 16th May on completion of 30 years' service. Colonel Spencer has spent his life in military employ and has seen much service. For the past three years he has been on leave in and out of India under the 1875 leave rules.

He has written much on enteric and allied fevers in scapys, and we have frequently published papers from his pen.

LIEUTENANT COLONEL P DURRILL-PARK, I M S, completes 30 years' pension service on 16th May 1910 and will retire. He entered the service in March 1880, and has been for years past Resident Surgeon, Jaipur. He is a well known authority on lithotomy and cataract operations and has often contributed to our columns.

CAPTAIN R W ANTHONY, I M S, M B, I R C S Ed, is appointed Civil Surgeon etc., of Hyderabad, Sind, vice Major V B Bennett, I R C S, I M S, gone on leave.

CAPTAIN M S IRANI, I M S, acts as Civil Surgeon of Ratnagiri, vice Captain Anthony.

ASSISTANT SURGEON P P FERNANDEZ acts as Civil Surgeon, Bijapur.

ON return from deputation Lieutenant Colonel Crimmin, V C, C I I, D P H, I M S, is appointed Presidency Surgeon (3rd District), Bombay, and Lieutenant Colonel W E Jennings, M D, D P H, is appointed Health Officer, Port of Bombay.

CAPTAIN D COWIN, I M S, acts for Lieutenant Colonel J R Adie, I M S, on deputation, as Civil Surgeon, Ferozepore.

LIEUTENANT COLONEL J T CAIVERT, M B, I M S, is confirmed in the appointment of Professor of Materia Medica, Medical College, Calcutta, and Second Physician to the College Hospital, with effect from the 1st March 1910.

CAPTAIN F P MACKIE, I R C S, I M S, was granted privilege leave for two months, with effect from the 1st December 1909.

LIEUTENANT COLONEL J CHAYTOR WHITE, M D, I M S, Sanitary Commissioner, United Provinces, is granted privilege leave for three months with furlough out of India, on medical certificate, for nine months in continuation, with effect from the 26th March 1910.

MAJOR J C ROBERTSON, M B, I M S, is appointed to officiate as Sanitary Commissioner, United Provinces during the absence on leave of Lieutenant Colonel J Chaytor White, M D, I M S, or until further orders.

CAPTAIN T H GLOSTER, M B, I M S, is granted an extension of furlough for six months, in continuation of the furlough granted to him in the Home Department Notification No 746, dated the 7th May 1909.

ON return from the privilege leave of absence granted to him in the notification of the Government of India, in the Home Department, No 154, dated the 21st of January 1910, Captain H M Mackenzie, M B, I M S, resumed charge of the duties of Health Officer and District Plague Medical Officer of Simla on the forenoon of the 21st of February 1910, relieving Lieutenant Colonel H B Melville, M B, I M S, of the additional duties.

THE services of Captain G P T Groube, I M S, Assistant Plague Medical Officer, Ferozepore, were replaced at the disposal of the Government of India, in the Home Department, with effect from the afternoon of the 21st February 1910.

MAJOR BROWNING SMITH, I M S, has taken the D P H of the Royal College of Surgeon of England.

CAPTAIN J M S MACMILLAN, I M S, F R C S, is posted permanently to the Central Provinces as a Civil Surgeon.

CAPTAIN F C RUTHBROOK, M D, I M S, Civil Surgeon, Bilaspur, C P, has been granted 3 months' privilege leave.

CAPTAIN A M PIPWING, I M S, of Raipur, is placed in visiting charge of Bilaspur.

MAJOR N P O'GORMAN LATOR, I M S, has returned to duty from leave.

ONE month's privilege leave is granted to Major C DUFF, I R C S, I M S, Civil Surgeon, Maymyo, and Major O R Poore, I M S, holds charge of his duties as a collateral charge.

CAPTAIN H A DOUGAN, I M S, is posted to Molkilla as Civil Surgeon, vice Captain Baigol, I M S.

LIEUTENANT COLONEL K PRASAD, I M S, was granted privilege leave to the amount due on 25th March 1910.

CAPTAIN O F MARH, I M S, holds collateral charge at Bhamo, vice Lieutenant Colonel Prasad, on leave.

CAPTAIN R KESSELL, I M S, has got leave and has been relieved as Civil Surgeon of Thayetmyo by Captain R D MacGregor, I M S.

MILITARY ASSISTANT SURGEON W ST H HOFFERMAN is granted combined leave for fifteen months.

LIEUTENANT COLONEL E O HART, I M S, Sanitary Commissioner, E B and A, at home, on leave, is granted an extension of three months' study leave and six months' furlough.

DRIS—HEAD DRIS of Sikh Officers of the Indian Medical Service.—The Government of India are pleased to notify that Sikhs serving in the Indian Medical Service are permitted to retain their hair uncut and to wear a paggi instead of helmet when in uniform. This order is also applicable to Sikhs undergoing probationary courses at the Royal Army Medical College and the Royal Army Medical Corps Depot in England.

2 The head dress to be worn by these officers will be a yellow pag, under a dark blue *safa* with gold ends. A khaki *safa* will be worn with khaki uniform. The question of a badge is under consideration, and orders will issue on the subject hereafter.

CAPTAIN N E H SCOTT, I M S, Agency Surgeon, has been granted combined privilege, special, and study leave for a total period of 12 months from 9th March 1910.

CAPTAIN H GROSSLY, I M S, is posted as Agency Surgeon, Maskat, from 9th March.

LIEUTENANT COLONEL D S E BAIN, I M S (Madras), has been permitted to retire from 5th April 1910.

THE Viceroy and Governor General has been pleased to make the following appointments on His Excellency's Personal Staff—

To be Honorary Surgeons

Lieutenant Colonel S Westcott, M B, R A M C, vice Surgeon General F W Trevor, C B, M B, vacated.

Major W Selby, D S O, F R C S, I M S, vice Colonel R Macrae, M B, I M S, retired.

IT will be noted that a Junior Officer has succeeded Colonel Macrae. Major Selby has been appointed on account of his distinguished Military Services which include Chitral, Samana and the Tihai Expeditions.

This is quite as it should be, but it is not to be understood that good service in the Civil Medical Department does not give an equal claim to this distinction.

MAJOR R H ELLIOT, F R C S, I M S, Ophthalmic Surgeon, Madras, has been elected a Vice President of the Ophthalmic Section at the B M A Meeting in London. He has also been invited to go home and demonstrate at the Oxford Ophthalmological Congress his new operation for glaucoma. These are great compliments to an officer still in practice in India. It is a great pity that Major Elliot will not be able to get leave home.

CAPTAIN W M ANDERSON, Indian Medical Service, an officiating Agency Surgeon of the 2nd class, is granted privilege leave for three months, combined with furlough for fifteen months and study leave for six months, with effect from the 3rd April 1910, under Articles 243 and 303 (b) of the Civil Service Regulations, and the Regulations prescribed in the Notification by the Government of India in the Army Department, No 25, dated the 7th January 1910.

THE services of Captain H W Pierpoint, I R C S, I M S, are placed temporarily at the disposal of the Honourable the Chief Commissioner of the Central Provinces.

THE services of Captain J MacG Skinner, M B, I M S, are placed temporarily at the disposal of the Government of Madras.

THE services of Lieutenant Colonel L. C. Reeves, I M S., are replaced at the disposal of His Excellency the Commander in Chief in India.

THE services of Captain J. Morison, M B, I M S., are placed temporarily at the disposal of the Government of Eastern Bengal and Assam.

THE following are gazetted as Lieutenants, I M S., with effect from 31st July 1909 —

Charles Harold Smith, M D, F R C S

Alan MacDonald Dick, M B

Thomas John Carey Evans

Robert Inglis Binning, M B

Maurice James Holgate, M B

Trevor Lawrence Bomford, M B

Graham Rigby Lynn, M B

Louis Hope Lovat Mackenzie, M B

John McDougall Eckstein

William Andrew Morton Jack, M B

Alexander Charles Anderson

Duncan Gordon Cooper, M B

David Arthur, M B

William Leonard Forsyth, M B

Keshav Sadashiv Thakur

Mohamed Abdur Rahman

Edward Humfrey Vere Hodge, M B

Gerald Tyler Burke, M B

Herbert Robert Burnett Gibson, M B

Mark Alleyne Nicholson

The April Army List only knew the whereabouts of nine of the above officers.

LIEUTENANT S. SARKAR, I M S., was appointed from 1st April 1910 to hold Civil Medical charge of Buxa Duu.

CAPTAIN J. ANDERSON, I M S., held *sub pro tempore* charge of the Central Prison, Hyderabad, Sind, from 7th May 1909 to 8th January 1910.

MAJOR A. STREET, F R C S., is granted combined leave for ten months fifteen days, and Major S. Evans, M B, I M S., officiates as Professor of Surgery in the Grant Medical College, Bombay.

CAPTAIN W. D. A. KEYS, M D, I M S., acts as medical officer to the Kathiawar Political Agency.

CAPTAIN J. L. LONHAM, M B, I M S., acts as Civil Surgeon of Surat.

MAJOR E. V. HUGO, F R C S, I M S., has been granted two and a half months' leave from 1st April 1910.

CAPTAIN R. A. CHAMBERS, M B, I M S., has joined temporarily the Punjab Jail Department.

CAPTAIN H. G. S. WFB, I M S., is appointed specialist and posted to the Brigade Laboratory, Jubbulpore.

CAPTAIN E. W. C. Bradfield, I M S., is appointed specialist in Ophthalmology on 7th (Meerut) Division.

CAPTAIN W. TARR, I M S., acts as Superintendent, Central Jail, Jubbulpore, C P.

CAPTAIN J. M. A. MACMILLAN, F R C S, I M S., acts as Civil Surgeon of Pachmai till 30th June.

MILITARY ASSISTANT SURGEON V. G. MATHEWS, L R C S I, acts as Superintendent, Central Jail, Raipur, C P.

MAJOR J. W. F. RAIT, I M S., has succeeded Lieutenant Colonel D. G. Crawford, I M S., as Civil Surgeon of Hughli.

CAPTAIN H. EMSLIE SMITH, I M S., is posted to Muzshidabad as Civil Surgeon.

CAPTAIN A. W. GREIG, I M S., Superintendent of the Mandalay Central Jail, has been granted two years' combined leave.

LIEUTENANT COLONEL R. E. S. DAVIS, M B, I M S., is granted leave on medical certificate from 10th February.

CAPTAIN P. K. TARAPORE, I M S., is posted to the Rangoon Central Jail.

CAPTAIN W. H. TUCKER, I M S., is granted nineteen months combined leave out of India.

CAPTAIN S. A. RUZZAK, I M S., has been posted to South Canara as District Medical Officer.

INDIAN MEDICAL SERVICE—Specialists—The following officers are appointed specialists in the undermentioned subjects, with effect from the dates stated against their names —

(c) Advanced Operative Surgery

5th (Mhow) Division Captain C. H. Brodribb, 19th January 1910.

9th (Secunderabad) Division Lieutenant A. G. Coullie, 27th February 1910.

Prevention of Disease

Lieutenant A. J. H. Russell, Brigade Laboratory, Secunderabad, 4th March 1910.

Lieutenant J. J. H. Nelson, Brigade Laboratory, Bangalore, 2nd March 1910.

MAJOR A. LEVENTON, I M S., having gone on deputation to the Commission on labour conditions in the Tea gardens, Captain D. P. Gail, I M S., took over charge of the duties of Civil Surgeon, Rampore Baulia.

CAPTAIN W. D. WRIGHT, I M S., acts as Civil Surgeon of Ahmednagar in addition to his other duties.

LIEUTENANT COLONEL W. D. SUTHERLAND, I M S., is confirmed as a Civil Surgeon, 1st Class, *vice* Lieutenant Colonel J. L. Poynder, I M S., retired.

HONORARY CAPTAIN J. PRENIE, I S M D, has been granted by the Secretary of State six months' extension of furlough.

MILITARY ASSISTANT SURGEON P. J. McGRATH, I S M D, has joined the Civil Medical Department, Madras.

CAPTAIN J. HUSBAND, I M S., took over the Civil Medical duties of Kohat District from Captain G. Brouse, I M S., on 31st March.

CAPTAIN G. D. FRANKLIN, I M S., Agency Surgeon, Meshed, was appointed to act as His Britannic Majesty's Consul General and Agent to the Government of India in Khorasan in addition to his other duties from 6th April 1910.

LIEUTENANT COLONEL C. O. MANIFOLD, I M S., was promoted Colonel, I M S., with effect from 29th March 1910.

LIEUTENANT COLONEL W. B. BROWNING, C I E, I M S., has been permitted to retire from the service from 17th May 1910.

LIEUTENANT COLONEL BROWNING was educated in Dublin and took the L R O P and L R C S I in 1879. He has held the highest appointments in the Madras Medical College.

CAPTAIN R. A. CHAMBERS, I M S., has taken over charge of the Lahore District and Female Jails on 1st April 1910.

BREVET COLONEL R. H. FIRTH, R A M C, has been appointed Sanitary Officer, Army Head Quarters, India.

CAPTAIN H. M. MACKENZIE, I M S., acts as Professor of Physiology in the Medical College, Calcutta, *vice* Captain D. McCay, I M S., on leave.

CAPTAIN S. H. LEE ABBOT, I M S., made over charge of Dehra Ghazi Khan on 19th March, and Captain A. K. Laudie, I M S., took charge on 22nd March 1910.

WITH reference to the Despatch of His Majesty's Secretary of State for India, No. 141 Public, dated the 29th of October 1909, Senior Assistant Surgeons Lala Hishan Chand and Munshi Miran Balsh, Utair, officiating Civil Surgeons of Gurdaspur and Dharmasala, are appointed Civil Surgeons on the Punjab Provincial Establishment, with effect from the 4th and 9th October 1909, the dates on which Majors R. Heard, M B, I M S., and H. Ainsworth, M B, F R C S, I M S., assumed charge, respectively, of the duties of Professor of Midwifery and Professor of Ophthalmic Surgery, Medical College, Lahore.

The reference to the Secretary of State's Despatch is significant.

LIEUTENANT COLONEL JORDAN, I M S., has gone on furlough, and Captain Maxwell Mackelvie, I M S., is transferred to Dabhunga as Civil Surgeon.

DR R. PALIPAKA is transferred from the Civil Surgeoncy of Nadia to that at Puri.

LIEUTENANT COLONEL E DOBSON, I M S, goes to Lahore as medical storekeeper to Government, and Major Hayward, I M S, recently Police Surgeon of Calcutta, takes up the medical storekeepership in Calcutta. Colonel Dobson is due to retire on 26th November 1910 on completion of 30 years' pension service.

UNDER the provisions of Articles 260, 316 and 233 of the Civil Service Regulations, privilege leave for three months combined with special leave on urgent private affairs for three months, is granted to Captain R Kelsall, I M S, Civil Surgeon Thayetmyo, with effect from the date on which he availed himself of the privilege leave.

CAPTAIN HERBERT BODLEY SCOTT, I M S, whose services have been placed at the disposal of the Government of Burma for temporary plague duty, is posted to Meiktila as special Plague Medical Officer, Meiktila Division, with effect from the date on which he may assume charge of his duties.

ON his arrival from India, Captain H B Scott, I M S, is placed on special duty in the Pegu Division, as a temporary measure prior to his assuming charge of his duties as special Plague Medical Officer, Meiktila Division, to which he has been posted in this Department Notification No 114, dated the 12th April 1910.

CAPTAIN H S MATSON, I M S, is transferred from Meiktila and is appointed to be Civil Surgeon, Mogoke, in place of Major A Fenton, I M S, transferred.

MAJOR A FENTON, I M S, is transferred from Mogoke and is appointed to be Civil Surgeon, Mandalay, in place of Lieutenant Colonel R H Caston, I M S, proceeding on leave.

WITH reference to the notification of the Government of India in the Home Department, No 291, dated the 24th of March 1910, Major H Ainsworth FRCS, I M S, Professor of Ophthalmology, Medical College, Lahore, assumed charge of the duties of officiating Professor of Surgery, in addition to his own duties, with effect from the afternoon of the 5th of April 1910, relieving Major E V Hugo, M D, I R C S, I M S, proceeded on leave.

CAPTAIN J E CLEMENTS, I M S, has been granted 18 months' combined leave from 7th April 1910 and Captain N H Hume, I M S, acts for him as Civil Surgeon and Superintendent of the Central Jail, Montgomery.

LIEUTENANT COLONEL HAROLD HENDLEY, I M S, is granted 2½ months' extension of the combined leave granted him in July 1909.

MAJOR P ST O MORE, I M S, on return from deputation, took over duties of Civil Surgeon, Attock.

CAPTAIN S H LEE ABBOTT, I M S, is transferred to Dalhousie as Civil Surgeon.

LIEUTENANT COLONEL G J H BELL, M B, I M S, Superintendent, Rangoon Central Jail, is appointed to be Inspector General of Prisons, Burma, with effect from the 1st April 1910, in place of Lieutenant Colonel E P Frenchman, retired.

CAPTAIN A S LESLIE, M B, I M S, is appointed to officiate as Superintendent of the Insein Central Jail, in place of Captain H H G Knapp, M D, I M S, transferred.

ON relief by Captain A S Leslie, Captain H H G Knapp, M D, I M S, is appointed to be Superintendent of the Rangoon Central Jail, in place of Lieutenant-Colonel G J H Bell, M B, I M S.

THE following medical officers have passed in Pashtu by the Higher Standard—Captain G Browne, I M S, Captain S Haughton, I M S, Lieutenant R N Chopra, I M S, Assistant Surgeons E G Clenden, J O Dewey and J A Pinto, I M S D.

CAPTAIN J W LITTLE, I M S, Civil Surgeon, Dera Ismail Khan, was granted privilege leave of absence for 13 days under the provisions of Article 260 of the Civil Service Regulations, from the 30th August to the 11th September 1909, both days inclusive.

THE services of Captain D C V FitzGerald, I M S, are replaced at the disposal of the Government of India, with effect from the date on which he is relieved of his duties as Officiating Civil Surgeon, Sibsagar.

CAPTAIN A S LESLIE, M B, I M S, has joined the Burma Jail Department.

THERAPEUTIC NOTES

MESSRS BURROUGHS, WELLCOME & Co have put on the market a new active principle of Ergot entitled TYRAMIN, which can be given either by the mouth or hypodermically. It produces a marked rise in blood pressure.

MESSRS V J NAHAIET & Co, Rangoon, advertise stores for the cold storage of fish, flesh, and fowl. They should be very useful in the hot weather.

THE attention of microscopists is directed to the NEW REFLECTING CONDENSER made by Leitz. The London address of E Leitz is 9, Oxford Street, London.

THE well known firm, Battle & Co, St. Louis, U S A, now advertise ECTHOL, as used in cases of blood dyscrasia.

A NEW and palatable preparation of Malt is DIAMALT, brought out by the British Diamalt Co, of Southwark Street, London, E C.

NASTIN B 0, Nastin B 1, Nastin B 2 and Ketyn in tubes of 1 cc each are obtainable from Kahn and Kahn and N. Powell & Co, of Bombay, Smith, Stanistreet & Co, of Calcutta, H Hegt & Co and E M DeSouza & Co, of Rangoon, and The Indian Warehouse Co, of Bombay.

E Merck, of Darmstadt, has an agent in Bombay in the person of Mr E Gohner, the Fort, Bombay.

Buigoyne Burdidge & Co of London are so well known a firm that we need do no more than mention their soluble preparation of Sandal wood oil, and their Liquor Pepsini Bismuthi.

Notice.

SCIENTIFIC Articles and Notes of interest to the Profession in India are solicited. Contributors of Original Articles will receive 25 Reprints gratis, if requested.

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to THE EDITOR, *The Indian Medical Gazette*, c/o Messrs Thacker, Spink & Co, Calcutta.

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BOOKS, REPORTS, &c., RECEIVED —

Squire's Companion to B P, 3rd Appendix, 1910
Burnet's Hints on Prescription Writing (J Currie & Co)
Burnet's Pocket Clinical Guide (J Currie & Co)
Proceedings, Royal Society of Medicine, Vol III, No 4
P W Williams Rhinology (Longmans, Green & Co) Price 15s
Ashton's Gynecology New Edition (W B Saunders Co)
Care of the Infant By R Vincent New Edition (Baillière, Tindall & Cox) Price 10s 6d
Heart Affections at Bad Nauheim By J G Catson (Franz Sonnenschein & Co) Price 6s
Emergencies of General Practice By P Sargant (Henry Rowde)
Elementary Physiology By Drummond (Edwin Arnold)
Urgent Surgery By I Legars Eng Edition (Stimpfen, Marshall & Co, Ltd)
Caldwell's Index of Medical Treatment (Edwin Arnold)
Administration Report, E B and A
Report of Canal Zone Medical Association
Die Experimentelle Pharmakologie (Meyer & Gottlieb, Berlin)
Price 12 marks

LETTERS, COMMUNICATIONS, &c., RECEIVED FROM —

Messrs Squire & Co, London, Lt Col Drake Brockman, I M S, Sutan, Captain Holdich Leicester I M S, Calcutta, Lt Shorten, I M S, Buxa Duars, Colonel W G King, C I E, I M S, Rangoon, Dr L Fink, Burma, Reception Committee, B M A, London, Major Kilkelly, I M S, Bombay Lt Col H Smith, I M S, Amritsar, Dr Keelan, I M S, Capt Moses, I M S, Purnea, Capt McKechnie, I M S, Fatawa Lt Col Fischer, I M S, Dehra Doon Surgeon General Lukis, Simla Major Clemesha, I M S, Calcutta, Major Lt H Elliot, I M S, Madras Dr Mylvaganam, Madras, Lt Col J R Adie, I M S, Amritsar, Editor, Annales de Physiotherapie, Paris, Lt Col I Durill Pank, I M S, Jaipur, Capt Walter, I M S, Dehra Doon, Capt Power Connor, I M S, Gya, Lieut. H W Acton, I M S, Peshawar

Original Articles

SCLERECTOMY IN GLAUCOMA

B. F. P. MAYNARD, M.B., F.R.C.S.,

LT COL., I.N.S.,

Calcutta

I.—BRIEF HISTORICAL NOTE

THE evolution of glaucoma operations has been rapid in recent years and a short account of it may be of interest to the readers of the *Indian Medical Gazette*, who may not have access to the ever-growing literature of the subject.

De Wecker was the first to recognise that success in glaucoma operations depended essentially upon the production of a filtering cicatrix, and he urged the importance, from this point of view, of making the incision scleral. He regarded the iridectomy as of minor importance.

Badar (1881), performed a sclerectomy with sub-conjunctival prolapse of iris and the production of a filtration seal.

Treacher-Collins proved that iridectomy relieved glaucoma either by dislodging the faultily placed iris (opening up the filtration angle) or by the formation of a sub-conjunctival fistula in the sclero-corneal tissue brought about by prolapse of iris.

Herbert (Trans Ophthalmological Society, Vol XXIII, 1903, p 324), noticed that more general success was obtained in performing iridectomy for glaucoma (chronic), when by chance the iris healed in the wound, he also noticed that a large iris prolapse uncovered by conjunctiva was often associated with *nitis* from the beginning, whereas if covered mainly or entirely by conjunctiva it had not this liability. He accordingly began purposely leaving iris prolapses and included in his paper (quoted above), the results of 133 cases in which this was done. The relief of tension, he found to be certain and permanent—though not always immediate, 'as the prolapsed loop of iris is not at once pervious' Daily massage he found improved matters, and he regarded iridectomy as necessary in addition to the prolapse. The production of this 'filtering cicatrix' he concluded was indicated (1) when iridectomy had already failed, (2) where it seemed likely to fail—in all advanced chronic glaucoma, and (3) when patients, as in India, are not expected to return promptly for treatment on failure of a first operation. Herbert next tried a small sclerotomy together with a long conjunctival flap, which was infolded by being pushed through the wound into the anterior chamber, the end sticking out. In some cases this was successful in forming a fistula, though in others it failed even when held in place by a suture.

In 1907 Herbert published his 'wedge isolation' operation (*Ophthalmoscope*, 1907, p 292), which he had begun to perform in April 1906, in Bombay. This represents an attempt to obtain a true filtering cicatrix free from *nitis* and is in its essence allied to Lagrange's operation, though more difficult of performance. The cases operated upon in this way by Herbert and shown by him at the Sheffield meeting of the British Medical Association in 1908 were very good in their after-results. In the paper above quoted Herbert emphasises the distinction that must be drawn between cicatrices that are 'cystoid' (in which the *nitis* is included), 'fistulous' (in which there are small openings seen subconjunctivally as small dark points), and 'filtering' (which are smooth even scars allowing aqueous humour to pass through them as shown by the pitting oedematous state of the conjunctiva over them and not showing any dark fistulous points). Herbert's name will always occupy an honourable place in the history of the attempts to relieve glaucoma by operation. His determined and successful efforts to obtain thin filtering scars and the wealth of clinical material which he used to such advantage, have rendered his work of great value. One is glad to think that this is now generally appreciated among ophthalmic surgeons.

Thomson Henderson—also of Nottingham, denies absolutely the possibility of any permanent filtering cicatrix being ever formed in either corneal or scleral tissue, and attributes good results in such attempts to the cutting of the *nitis*, wounds of which he says never cicatrise but remain open and may be seen years afterwards as if they had been made *post-mortem*. He attributes glaucoma to sclerosis of the ligamentum pectinatum and not to blocking of the filtration angle by adhesion of the *nitis*. The results of sclerectomy and of Herbert's wedge isolation operation and Lagrange's operation, when no iridectomy is done, prove fairly conclusively that Henderson is wrong in saying that filtering cicatrices cannot occur.

Lagrange first described his operation of 'sclerecto-iridectomy' at the May 1906 meeting of the French Ophthalmological Society, and his paper was published in the August 1906 number of the *Archives d'Ophthalmologie*. He made an incision as if for cataract extraction, but smaller and in the sclera, with a narrow Graefe's knife beveling the sclera by turning the edge of the knife towards the globe, so that when the large conjunctival flap, with which the incision terminated, was turned down over the cornea, a small tongueshaped flap of sclera was found attached to the cornea, a piece of the apex of this was cut off by a strong pair of curved scissors, to effect which Vacher of Orleans has since devised a useful scissors punch like a miniature bone-nibbler. Finally he performed a large iridectomy. The operation has been successful with Lagrange and

other surgeons, including the writer, but the objection to it is the difficulty of knowing how much sclera to remove. Too much is dangerous and too little may be unsuccessful. Vacher's punch solves this difficulty to a certain extent, but not entirely.

In spite of all these methods of relieving glaucoma the ideal operation was still to come, and the idea of it seems to have occurred about the same time to Dr. Freeland Feigus, of Glasgow, and Major Elliot of Madras, and to have been carried out over thirty years ago, though not quite in the same way. *Argyll Robertson* in 1876 described a method of trephining the sclera for glaucoma in cases where iridectomy was not possible or had failed, and had some good results with it. He performed it with Bowman's trephine, and later on with one of his own design, the opening being made into the supra-chorioid space behind the ciliary body. *Blanco* (1903), and *Frohlich* (1904), also advocated trephining the ciliary body. Feigus did his first trephining on January 1st, 1909, and described it at Oxford and at the annual meeting of the British Medical Association in July 1909. Within a month the writer performed it twice on blind glaucomatous eyes with such satisfactory results as regards reduction of tension and relief of pain that he at once realised its value. Feigus dissects up a large triangular flap of conjunctiva towards the cornea and turns it down over the cornea. He then trephines with one of Bowman's medium sized corneal trephines (or one of his own design with serrated edge) through the sclera into the angle of the anterior chamber. The circle of sclera thus separated is removed. An iris retractor is then passed through the opening into the anterior chamber, keeping it close to the sclera and cornea until its point is seen well within the anterior chamber. The flap is then replaced and fixed with a suture. The operation of Feigus is therefore a cyclodialysis as well as a sclerectomy.

Elliot (*Ophthalmoscope*, Dec 1909, p. 804), published 'a preliminary note on a new operation for the establishment of a filtering cicatrix in the treatment of glaucoma,' in which he describes an operation he had been performing for some time (the first being on August 2nd, 1909). It is almost identical with that just described, except that there is no cyclodialysis. In 21 out of his 51 cases reported an iridectomy was performed—presumably an excision of the prolapsed portion of iris. Elliot emphasises the danger of trephining too far out and so trapping the supra-chorioid space instead of the anterior chamber. This happened in one of his earlier cases before the importance of 'hugging the limbus' was appreciated. In answer to Elliot's paper Feigus wrote in the February number of the *Ophthalmoscope*, p. 74, giving the history of his operation and implying that Elliot's operation was identical with his, and in fact borrowed from it. To this

Elliot has made a lengthy and vigorous reply in the April number of the same journal, saying that he had never heard of Feigus doing the operation until after he had done sclerectomy himself, claiming originality but not priority.

II.—NOTES ON THE OPERATION OF SCLERECTOMY BY TREPHINING

The writer has performed this operation as designed by Feigus and Elliot a considerable number of times and with uniform success both in the relief of tension, in abolition of pain, and, when not done too late, in preservation of sight. He has not done it in very acute cases, but in subacute and chronic glaucoma and in several of those peculiar cases of glaucoma met with in epidemic dropsy,* where indeed its advantages over other operations are conspicuous. He believes it will replace iridectomy, iridectomiedialysis and other operations for glaucoma. The following is a description of his present method of performing it.

A triangular flap of conjunctiva is turned down, with straight blunt-pointed squint scissors and fixation forceps, about $1\frac{1}{2}$ " long and $\frac{1}{2}$ " wide at its base. A Graefe's knife is used to separate the flap cleanly up to its base, so that no subconjunctival tissue may catch the trephine. The trephine used is a special small von Hippel's corneal trephine made for him by Weiss, worked by clock-work and 'stopped' so as not to cut deeper than the usual thickness of the sclera—half a millimetre. Feigus's serrated trephine is not so good and gets blunt more quickly. Von Hippel's cuts more cleanly and quickly than Bowman's, which have to be rotated more slowly and with delicacy by the fingers. A speculum is used and the globe is steadied by means of fixation forceps in the left hand. As soon as the anterior chamber is reached the aqueous escapes freely and the chamber becomes shallow, the iris bulging into the opening. If the circle is not completely severed by the trephine, the disc of sclera is cut off with scissors. The writer then divides the projecting iris in a radial direction with scissors. This releases the aqueous humour in the posterior chamber which is the cause of the protrusion, and the iris then usually slips back into the anterior chamber and the pupil is restored to its usual shape. He considers this small modification of value. If the manœuvre is not successful the projecting iris is cut off. Should no aqueous escape up to this point in the operation it is advisable to pass a flat iris retractor through the trephine hole into the anterior chamber and thus perform a cyclodialysis in addition. The conjunctival flap is then replaced, smoothed out into position and the lids closed without disturbing it. Some redness remains for some time after, and the trephine hole usually shows black on raising the upper lid,

* See *Indian Medical Gazette*, Vol. XLIV, 1909 p. 377.

otherwise no one can usually tell that any operation has been performed. Should the iris have been cut off the pupil may be oval vertically and look as if a small coloboma were present. If 'quiet' iris occurs as it sometimes does atropine is used.

The advantages of the operation are (1) complete and permanent reduction of tension, *i.e.*, relief of the glaucoma, (2) retention of a round or but slightly altered pupil. This cosmetic advantage is much appreciated by patients and is more marked in those with a blue iris, (3) no hæmorrhage occurs into the anterior chamber, either at the time of operation or recurrently—in epidemic dropsy cases, this is a common event after an iridectomy dialysis, (4) simplicity of performance compared with iridectomy dialysis (iridectomy partly by tearing). In the latter the difficulties and dangers may be great—so great as to justify the assertion that it is sometimes one of the most difficult operations in surgery.

The risks of the operation may be (1) if the flap is dissected too far down towards the cornea it is liable to become button holed and the possibility of infection is then greater from incomplete covering of the opening. It has happened twice without infection following, (2) taking up too large a flap of conjunctiva might lead to opening of Tenon's capsule and exposure of the rectus tendon. It is hardly conceivable that anyone would be so careless, however. (3) If the trephine is not sharp, and it rapidly becomes blunt, it appears to remove a smaller circle than itself, and pressure has to be increased. This might lead to the trephine passing in too far, damaging the deeper tissues. In the posterior operation this has occurred and led to free intra and extra ocular hæmorrhage (Frohlich). In the present method it might possibly cause damage to the lens or its ligament.

SIMPLE TREPHINING IN THE OPERATIVE TREATMENT OF GLAUCOMA *

By R. H. ELLIOT, M.D. (LOND.), F.R.C.S. (ENG.), &c.,
MAJOR, I.M.S.,

Superintendent, Government Ophthalmic Hospital, Madras

THE establishment by Von Graefe of the operation of iridectomy for the relief of Glaucoma, dates back to the year 1857. This operation held its own against all other methods, including sclerotomy and posterior sclerotomy, till the introduction by Lagrange of the conception of a filtering cicatrix.

Lagrange began his advocacy of the new method in May 1906, in a lecture delivered before the French Ophthalmological Society, and has continued to advance along the path he first marked out. Shortly put, his operation is a combined sclerectomy and iridectomy, the operation being performed close to the limbus with a keratome and scissors.

Herbert of Bombay followed with an ingeniously devised procedure, whereby he endeavoured to perform subconjunctivally a sclerectomy, combined with a small iridectomy.

These efforts soon attracted the attention of ophthalmic surgeons, and it is not surprising that they were at first received coldly in many quarters.

In Madras, we meet with an enormous amount of Glaucoma, and for a very long time I had been profoundly dissatisfied with the results of iridectomy. To me, the soundness of the new operations appealed so strongly, that I ventured to bring the matter before this branch some three years ago, and to express the opinion that the day of Graefe's operation was over, and that its sun had set after nearly 50 years of undisputed supremacy. Your members at that time were so taken aback, that it was suggested that I was taking too hopeful, if not too premature, a view of the case. However, little by little, iridectomy gave ground to the new procedures and the after-results of cases that have come back, have given us, in Madras, great encouragement. Major Kirkpatrick, during the 15 months he acted for me, carried on the same policy, and we not infrequently now see excellent results from eyes which have undergone the operation of sclerectomy in this hospital. Such cases are carefully looked out for, and a note taken whenever they re-appear. A further interesting observation has been frequently made during this transition period. All cases which have undergone iridectomy for Glaucoma have been carefully examined if they returned to the hospital, and in a large number of these which have retained good vision, a filtering scar has been found to be present, whilst in the failures no such evidence of filtration exists. Where some degree of filtration exists, blindness appears to be long delayed in its advent.

To both Lagrange's and Herbert's operations, certain objections can be offered. It is not easy to graduate the amount of sclera to be removed by the former method, nor is the operation free from the danger of a serious vitreous accident. Herbert's operation is tricky and difficult, though when correctly performed, it has yielded us excellent results.

It was such considerations as these which led me to the view that our object might be successfully and easily attained by means of a trephine. I spoke of this to two surgeons well known in Madras, but they did not seem very hopeful as to the result. I should, however, have ventured to perform the operation on a blind eye, but I left Madras sooner than I expected. Whilst I was on furlough the matter was often before me, and I took an early opportunity on my return to put it into execution. The operation proved to be an extremely easy one. The lowering of tension, which immediately followed the operation, was as marked as that

* A paper read at S. I. Branch of B. M. A.

obtained by either of the other two procedures. The iris was less apt to give trouble, and the risks were greatly reduced as compared with either of the other procedures.

The operation may be performed under the local influence of cocaine and adrenalin, dropped into the sac. If there is much pain or congestion, or if the patient is unwell, a hypodermic of morphia may be given 20 minutes before the operation. In recent cases we have been using subconjunctival injections of cocaine and adrenalin with excellent results. The patient looks down, and a large triangular flap of conjunctiva is dissected up from above the cornea, the attached base of the triangle lying at the sclero-corneal margin. Experience has shown the importance of dissecting this flap right up to the limbus-attachment of the conjunctiva. The flap is turned down on the cornea. The spot selected for the trephining should be as close to the limbus as possible, and should be prepared by using the scissor points freely, either cutting or scraping or both, right down to the scleral coat. It is important that no conjunctival tissue be left, as otherwise it will catch in the trephine and tend to draw the flap into the latter as it is working. I never pull on the flap, but simply steady the globe by pressing on the cornea through the down-turned flap, I find this quite sufficient to effect the purpose of keeping the eye at rest in the proper position. The trephine is used with quick light movements, and care is taken that its first application suffices to bite into the sclera, before it is raised to see the progress made. Once a clean ring is thus started, it is very easy to replace the trephine in it. At first the operator feels the need of frequently removing the trephine to watch progress, but he soon learns to know by the feel, when he is through. As soon as the anterior chamber is tapped, aqueous fluid wells up alongside the trephine, even apart from this, there is a curious sucking sensation which tells one the trephine is through. Moreover, the patient often helps by a slight movement due to the pain (seldom severe) which attends the completion of the section. The conjunctival flap is replaced *in situ* to see whether the iris is in position or not. If it is, and if there is no bulging of its base into the wound, the eye is at once closed. It sometimes happens that the iris bulges into the section the moment the disc is cut through, if so, it is snipped with scissors to let the aqueous fluid escape, and it then often goes back of itself. If it does not, then an iridectomy is performed. As a rule, a very small and peripheral section of the membrane suffices, more rarely it is necessary to make the iridectomy complete. We instil eserine drops into the eye after operation, if for any reason we fear a prolapse may take place. As a rule no drops whatever are used immediately after the operation. We have used a Bowman's trephine throughout in Madras,

and are still wavering between one of 2 mm diameter and one of 2.5 mm.

After I had sent home my preliminary paper on this operation to the Editor of the *Ophthalmoscope*, I was disappointed to find that another surgeon had forestalled me, in so far as the use of the trephine was concerned. Dr. Freeland Feigus of Glasgow's account of his operation reached India in October, and consequently I did not see it until shortly after my paper had left here. We had been working on very similar lines during the same year (he having begun in January and I in August) in complete ignorance of each other's work. There is an important point in which we differ from each other. Dr. Feigus began by performing a simple trephining, but gave it up and combined with it a cyclo-dialysis. I have kept steadily to the simple operation. If the operator allows his trephine aperture to be placed too far away from the limbus, he will enter the supra-ciliary space, instead of tapping the chamber. The result will be that he will not establish a free communication between the chamber and the subconjunctival space. If he then considers tapping of the chamber a necessity, he must burrow his way close to the scleral coat into the chamber, or in other words, he must add a cyclo-dialysis to his operation, and this is what Dr. Fergus has done. The simple method obviously recommends itself for clean neat working and for simplicity. That it is easy to enter the chamber in the way I have described, is proved by the fact that a few mornings ago I trephined six eyes in half an hour, reaching the anterior chamber and finishing the operation easily each time in five minutes.

At the risk of repetition, there are a few points I wish to emphasise, because they appear to me to be of such great importance—

(1) It is possible by using the points of the scissors, and dissecting concentrically with the cornea, to get very close up to the limbus. In doing so, one must keep one's points directed *towards the plane of the posterior pole of the lens*, one must not dissect tangentially to the eye. If one does the latter, one will quickly button-hole one's flap, if the former, one undermines the limbus and makes a deep groove overhung by the latter. It is the making of this overhung groove which determines that one enters the chamber with the trephine with certainty.

(2) If the trephine used is a sharp one, one can quickly, easily and certainly cut out a clean disc every time, with the reservation that in a large number of cases the disc remains attached at one small point, where the uncut tissue acts like a hinge, one clean snip of the scissors severs this, leaving a clean cut circular hole with no ragged edges whatever. I have recently made a point of pressing a little more on the corneal than on the scleral edge of the disc I am trephining, so as to make sure

of entering the chamber as far forwards as possible

(3) If a clean disc is thus cut out, without undue pressure of the trephine, one comparatively seldom requires to interfere much with the iris (*vide remarks on this subject*)

(4) A Bowman's trephine can be easily sterilised and if it is properly handled, can be kept very sharp. Our method of sharpening it, was devised by my First Assistant, Mr. Craggs. He removes the guard (the central male stem) of the trephine, and inserts it into cutting end of the instrument. By up and down movements he then sharpens the edge of the instrument from within, taking care to press on all sides in turn. Two Bowman trephines have lasted us for 150 odd operations, though they are, I fear, now worn out. They cut cleanly up to the last.

(5) The most favourable size of trephine (in diameter) is difficult to ascertain, till we have a considerable volume of statistics at our disposal, and till these statistics include a period of years in their survey. I am indebted to the ophthalmic surgeons who have been so good as to favour me with their views on this subject. The wide diversity of opinion expressed by equally able men, shows how little we really know on the subject. Roughly, my advisers fall into two classes, (1) those who think the trephine aperture may easily be made too large and so lead to a great permanent lowering of tension, and (2) those who fear that our fistulette will tend to close in time and so should be made large to start with. We mean to try various sizes of trephine, and hope in time to be able to reach a settled opinion. So far we have used two Bowman's trephines right through our operations in Madras, one of these, has a cutting diameter of 2 mm and the other of 2.5 mm. Our leaning is at present towards the latter.

PARTICULARS OF OPERATIONS

Total number of operations under review	128
Number of primary operations in the series	122
Number of secondary do	6

(These were performed on four patients, one being trephined thrice)

Number of patients operated on	89
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(In 33 patients both eyes were trephined, and almost invariably at the same sitting)

NB—The cases are serial from the commencement of the period in which this operation has been performed in the G. O. Hospital. Cases operated on by other surgeons are excluded, as also are the operations most recently performed.

Of the 89 patients operated on, 54 were males and 35 females. 70 were *Hindus*, 10 *Mahomedans*, 3 *Europeans* and 6 other castes.

Of the 122 eyes operated on, there were 7 blind painful eyes, 72 eyes with a vision of H. M. and no more, 23 eyes capable of counting

fingers at one distance or another, 20 eyes capable of reading types at various distances.

The 122 eyes may again be classified into—

57 eyes suffering from primary non-congestive glaucoma. 10 eyes suffering from primary congestive glaucoma. 25 eyes suffering from acute glaucoma, secondary to the changes which may occur during the maturation of a primary cataract. 4 of the blind painful eyeballs fall under the last 25, and the remaining 3 under the preceding 40.

COMPLICATIONS AND OTHER EVENTS OF INTEREST DURING THE OPERATION

(1) *Site of Operation*—In 86 of the 128 operations, the flap was placed and the trephining done above the cornea (67.17%), in 39, the operation was placed below the cornea (30.5%), whilst in 3 it was lateral (2.34%). The indication for the flap to be placed below or at the side, was in all cases a combination of a blind or nearly blind eye, with intractability on the part of the patient.

(2) *Anæsthetic used*—

Double trephining was done under the general influence of scopolamin and morphine, and the local influence of cocaine in

2 eyes

Morphine was used as the general anæsthetic, combined with the local use of cocaine in

16 "

Cocaine (usually combined with adrenalin) was the local anæsthetic (no general anæsthetic being employed) in

109 "

Cocaine and adrenalin mixture was injected subcutaneously beforehand beneath the flap area in

1 eye

Remarks—In cases where marked congestion was absent, cocaine and adrenalin drops or cocaine alone proved quite sufficient for the easy performance of the operation.

In nervous cases and where congestion was pronounced, a general anæsthetic effect was added by injecting morphine or morphine and scopolamin. In the one case where scopolamin was added to the morphine the results were excellent, but the labour involved is too great to admit of the extension of this method in a hospital such as this. The subconjunctival use of cocaine and adrenalin in the one case proved to have such excellent results that we are giving it an extended trial, and it bids fair to establish itself as a routine procedure, it makes a congested eye easy to trephine without the use of any general anæsthetic.

(3) *Vitreous Escapes*—In 128 operations with the trephine, there have been 6 instances of loss of vitreous (4.68%). In 4 of the cases the vitreous was very fluid in consistence, and the loss was free in all. In the two others the escape was very small in amount, only a bead of vitreous being lost. In one of the 4 there was no vision before operation, the operation was performed to relieve severe pain in the eye combined with headache and vomiting, the

tension was at once relieved and remained so for the 11 days he was under observation, the fact that he has not returned would possibly indicate that his symptoms were permanently relieved. In a second case the vision, both before and after operation, was II M, the tension was relieved by the operation, but the retina became detached, he disappeared after 15 days, and has not since been seen, the pain, which was the indication for the operation, did not return whilst he was under observation. In the remaining 2 cases the tension was relieved and vision was not altered.

I have a very strong impression that the cause of vitreous escape in a considerable percentage of cases is the placing of the trephine hole too far away from the limbus, this places the aperture over the vitreous body instead of over the chamber.

(4) *Failure to enter the Anterior Chamber with the Trephine*—In 5 cases I failed to enter the chamber with the trephine and was driven to push a fine curette into the anterior chamber in order to freely tap the aqueous fluid. Of these 5 cases, 4 did well. In the 5th I was obliged to re-open the wound, to remove impacted iris from it. The tension was relieved and the case did well as long as the man remained under observation, but the secondary operation was one of considerable anxiety, and it is not possible to be confident of the final result.

The method of combining a cyclo-dialysis with trephining is the procedure adopted as a routine measure by Mr. Freeland Feigus, the Glasgow surgeon. I had been under the impression that the above 5 cases fell into the category of 'Feigus' operation'. More mature consideration in the light of a recent case, not included in this paper, has led me to the opinion that, with two exceptions, they should not be so classified. All that I really did in the other cases was to either enlarge my trephine opening into the chamber, or in cases where even the minutest aperture into the chamber did not exist, to break through into the chamber. Placing my trephine as I have done, there can, in most cases, have been but a very thin partition between the trephine hole and the aqueous chamber in any case.

The frequency of Iridectomy—In the 128 operations, a portion of iris was removed on 65 occasions. In 57 the iridectomy was small and peripheral, whilst in 8 it was large and complete. A McKeown's irrigator was found of great service in washing back the iris in to the chamber, if it had prolapsed in front of a gush of fluid, on completing trephining. Any difficulty in so replacing it, or any tendency of the membrane to re-prolapse, was taken as indications for an iridectomy. With clean, neat trephinings, performed without undue pressure on the globe, it was found that iridectomy was less commonly called for than was the case in the earlier operations. This is illustrated by the fact that the iridectomy rate was 52.56 per cent in the first 78 cases, and only 44 per cent in the last 50.

There is reason to hope that one will be able to still further reduce this ratio.

POST OPERATIVE COMPLICATIONS

- | | |
|--|--------|
| (1) Cases in which a secondary trephining was called for owing to the tension failing to be lowered by the first operation | 4 eyes |
| (B) Cases in which a secondary operation was called for the removal of iris which had prolapsed into the subconjunctival space through the trephine hole | 2 " |
| (C) Cases in which a displacement of the iris towards the trephine aperture took place during convalescence, but did not call for any operative interference | 10 " |
| (D) Cases in which posterior synechia formed during convalescence without pain or other signs of iritis | 2 " |
| (E) Cases in which chamber failed to reform with 24 hours of operation | 18 " |

Remarks—Class A—In 118 out of the 122 eyes primarily operated on, the tension was lowered by the trephining and remained sub-normal or normal so long as the patient remained under observation. In 4, as shown above, the operation failed to relieve the hyper-tension. The serial numbers of 3 of the 4 cases were 23, 27 and 31. They were, therefore, amongst the early cases, and in each one of them it is noted that the chamber did not empty at the time of operation, though aqueous fluid escaped freely. It would seem likely that in these cases the supra-ciliary space and not the anterior chamber was opened. In one it is noted that the trephine was applied too far from the limbus. I fear the same was the case in the other 2. A second operation brought and kept the tension down in each case.

The 4th case is harder to understand. Its serial number is 110. The first operation (on 23rd December 1909) reached the chamber in each eye and all seemed to have gone well. In the L. E. tension remained reduced during the 6 weeks, the patient was still under observation. In the R. E. the base of the iris bulged into the trephine hole, and tension rose. On 20th January 1910, the offending iris was removed but without relief of tension. On 27th January 1910, a fresh trephining was done below, and again the iris blocked the aperture and tension was unrelieved, though the chamber was freely tapped. Again, on 24th February 1910, a fresh trephining was performed (on the outer side). As the chamber was not satisfactorily tapped, a curette was pushed into the chamber close to the scleral coat, thus enlarging the trephine opening. Aqueous escaped freely, and the tension fell below normal and stayed there during the next 7 days, after which the patient disappeared from the hospital. I fear that tension probably returned again. The case is one in which no explanation seemed to meet. Though the tension on admission was plus 20 (35 mm tracing with Maklakoff's tonometer) the cornea was clear, the course had been chronic,

and there were no features pointing to an acute course. The patient was most troublesome and unreasonable during the operation, straining and squeezing the eyes throughout.

Class B—In two cases the iris prolapsed as a result of the operation, in one on the sixth and in the other on the tenth day afterwards. In both the tension which had been lowered by the operation remained below normal. The prolapsed portion of iris was cut off without delay and the course of the recovery was not affected by the complication in one of them, but the other gave ground for some anxiety though it did well in the end, till it was lost sight of.

Class C—In 10 other cases displacement of the iris towards the trephine hole was noted. In 8 of these the displacement was very slight, the tension of the eye remained well lowered, filtration was free, and vision stood in *statu quo antea*. In one a threatening bulging was promptly reduced by eserine, and the patient's vision was better on discharge, 10 days after operation, than it had been before operation. In the remaining case the pupil was distinctly displaced towards the trephine opening, and the patient complained of pain, which was at once relieved by a free iridectomy. Tension remained low after the original operation, being unaffected by the complication, and vision was unchanged.

Class D—In these 2 cases the iritis proceeded so quietly that no suspicion of the occurrence of synechiae arose for some days. I fear that they may not have been the only cases of the kind. The main interest of such cases centres around the post-operative drug treatment of the eye in trephining cases. The eye is frequently congested at the time of operation. If there is a strong tendency to iris-prolapse, one must use eserine drops. In my early cases the instillation of this myotic was routine, but it was soon obvious that it was usually unnecessary, and occasionally harmful. We very seldom instil eserine now, and in all cases where the pupil shows a tendency towards contraction during convalescence we do not hesitate to exhibit atropine freely. I am convinced that there is no danger in so doing, and that in such selected cases it is a valuable safeguard. At the same time I should not wish to be understood to be advocating the indiscriminate use of this or of any other powerful drug.

Class E—In the 128 operations under review the section healed and the chamber consequently closed

within 24 hours in 110,

within 48 hours in 10,

between the 3rd and 5th days in 7,

later than the 5th day in 1 (12th day).

If the cases be divided into 2 series, viz., the first 50 and the last 78, one can see how far advantage was reaped from the early experience, for we were obviously at a disadvantage at first.

The chamber filled within the first 24 hours

in 37 cases out of the first 50 (74 per cent),

in 73 cases out of the last 78 (93.59 per cent.)

This improvement is to be attributed to clean trephining, associated with a minimum of interference during the operation. The percentage of iridectomies work out of the same footing sheds an additional light on this subject.

Remarks—The accompanying table gives the results of the cases which have come back to the hospital for further observation. Every patient has been requested to present himself or herself at 3 months' intervals, and it will be observed that over sixteen per cent have re-appeared already.

The tension was estimated by means of the Maklakoff Ophthalmometer, and is given in terms of the area of flattening in mm. The lower the reading the higher is the tension, and *vice versa*. The object of using this instrument was to eliminate, as far as possible, the personal factor of an observer who might be prejudiced in favour of a certain trend of results. All the readings alike were taken by an assistant who has had a very large experience in using the instrument.

It will be observed that in only one case did the operation fail to immediately lower tension, and that in that case a subsequent operation did this effectually. It is further noteworthy that the considerable reduction of tension immediately following operation, had given rise to a more normal condition in a number of the eyes on the return of the patients to hospital.

With regard to the fact that several of the eyes gave a reading of over 5 mm before operation, it is perhaps hardly necessary to remind surgeons that even eyes with well-marked signs of glaucoma show a normal tension at times, indeed, one meets with eyes which are undoubtedly glaucomatous and yet in which it is hard to find a rise of tension during the day-light hours. It is nevertheless necessary to protect such patients against periodical rises of tension which often take place at night.

The visual results speak for themselves. A large percentage of our cases come in with a very chronic and slowly progressive condition of hypertension, and in such cases one does not expect to find an improvement of visual power after operation, if one can check the progressive loss of visual power, a great deal has been done for the patient.

It is not pretended that the statistics now put forward make a conclusive case for the operative procedure I have advocated, but they are certainly highly encouraging, when one remembers what the inevitable course of glaucoma is. The present paper merely serves as an interim contribution, furnished partly on account of the interest the members of the Branch have taken in my work in this direction, and partly called for because one feels that in practising a new method of operating it is advisable to collect one's facts at intervals and to scrutinise them carefully in order to assure oneself that it is justifiable to continue to advance on the lines one has marked out.

Serial No	NAME'S	Side affected	CONDITION BEFORE OPERATION			CONDITION AFTER OPERATION					Time at which the patients were subsequently seen	CONDITION BEFORE			REMARKS	
			Refraction	Vision	Date of reformation of Chamber	Filtration	Position of pupil	Tension	Vision	Filtration		Position of pupil	Tension	Vision		
1	Hafeez Bho	Right	5 mm	H m	18 hrs	Fice	Central	6 mm	Unaltered	17 days after operation		Fice	Central	6 mm	H m	(Was operated for 1 2nd time 5 months after the 1st. Th went down to 7mm and the patient unproved in all respects
2	D V Subbasam Ditto	Do	1 mm	Fingers at 2 m	do	do	do	5 mm	Fingers at 3 m	2 and 2½ months after operation		do	do	5 mm	1	
3	G Kuppus	Left	do	Fingers at 1 m	do	do	do	do	do	Ditto		do	do	do	by 1 l	
	Ditto	Right	6 mm	H m	24 hrs	do	do	7 mm	Unaltered	9 months after operation		do	do	5.5 mm	F at 1 m	
		Left	do	do	do	do	Somewhat displaced upward	do	do	5½ months after operation		do	Slightly displaced upward	6 mm	F at 1.5 ft	
4	D Venkataswami Row	Right	4 mm	1	do	do	Central	do	do	3½ months and 4½ months after operation		do	Central	6.75 mm	0.6 better in glasses	
5	Ditto	Left	4.25 mm	by 1 l	do	do	do	do	do	Ditto		do	do	7.25 mm	1.5 c glasses	
	Mudalai	Right	1 mm	H m	do	do	do	5.25 mm	do	over 7 months after operation		do	do	6.25 mm	H m	
6	Mudalai	Left	3 mm	Fingers at 1 m	do	do	do	7 mm	do	Ditto		do	do	7 mm	Fingers at 1½ m	
7	N Appan	Right	do	H m	do	do	do	5 mm	do	4½ months after operation		do	do	5 mm	1½ m	
8	P Lechi Chetty	Left	do	Fingers at 3 ft	do	do	do	7 mm	Fingers at 4½ ft	1 month after operation		do	Displaced	7 mm	Fingers at 1½ ft	
9	Juganathi Row	Right	4.25 mm	H m	do	do	do	do	Unaltered	3 months after operation		do	Central	6 mm	H m	
	Ditto	Left	do	1.5 c glasses	do	do	do	do	do	Ditto		do	do	do	1.5 c glasses	
9	Anayya	Do	4 mm	H m	do	do	do	8 mm	do	7 months after operation		do	do	8 mm	H m	
10	K Pappannal	Right	do	do	5th day after operation	do	do	9 mm	do	2½ months after operation		do	do	do	do	
11	C Chinnamm	Left	do	do	24 hrs	do	Slightly displaced upward	6 mm	do	1 month after operation		do	do	7 mm	do	
12	C Subbath	Right	5.5 mm	Fingers at 2 m	do	do	Central	9 mm	Not tested	6 months after operation		do	do	6.5 mm	Fingers at 10 m or 15 ft	
	Ditto	Left	4.5 mm	H m	do	do	Slightly drawn up but practically central	7 mm	H M	Ditto		do	do	7 mm	15 ft	Due to iris adhesions
13	K Annamm	Do	4 mm	1 c glasses	do	Good	Central	do	5 bar 2 l s N I S	3 months after operation		Good	do	6.5 mm	2 l s	
14	M. S. M. C. Dhanito	Right	do	1 and 2 l s of 1	do	do	do	do	Not tested	8 months after operation		do	do	7.5 mm	Sph = 1.5	
	Ditto	Left	6.25 mm	1	48 hrs	do	Slightly raised	8 mm	do	Ditto		do	do	do	1 c + 1.5	Fingers at 5 m
15	Swami Row	Do	1 mm	Fingers at 3 m	24 hrs	do	Central	5.25 mm	do	7 months after operation		do	do	6 mm	Sph = 1.5	

NOTE - All cases presenting themselves up to time of printing (7th May 1910) have been included

EXTRACTION OF CATARACT IN THE CAPSULE

BY HENRY SMITH,

LT COL., I.M.S.,

Amritsar

MAJOR KILKELLY writes in the May, 1910, number of the *Indian Medical Gazette*, with the air that his paper in the last word on this subject. He sneers at my statistics and at the statistics of men whom I have had the honour of training among others, and implies that the facts of the hospital which he supervises are reliable. A hospital which in the years 1902-3-4-5-6 shows 0.40 per cent as the incidence of cataracts in a total of 3,184 cataract operations by the capsulotomy operation! He goes on to divide up my time and to apportion me duties in a manner which shows that he knows nothing about how I do my work, but he seems to think that this is necessary as a scientific argument and hence he presses it into his service. Suffice it to say that in my cataract seasons I do very little except cataract and iridectomies and supervise the hospital, leaving the rest of work to my staff.

It was with great reluctance that I operated on those cases in Bombay, leaving by the next train never to see them again and leaving them in charge of a Native staff, possibly in hostility to this operation. Major Kilkelly got me to operate on those cases to see how to do it. If he had for a moment led me to think that they were for publication, I would have indignantly refused to accept the conditions. As a matter of fact, I never heard of them again until I saw them published in the May number of the *Indian Medical Gazette*. I think, as an act of ordinary professional courtesy, Major Kilkelly should have consulted me before publishing the cases.

As regards the operations, they were nicely done, and I have no doubt that if they had been under my staff, they would have done just as well as the cases published herewith which represent my ordinary routine experience. What happened to those cases after they left the operating table I do not know. Suffice it to say that the results are so extravagantly bad in every detail that they are not intelligible to me. I can understand an occasional case going wrong with any man, but I cannot understand a series of cases being so extravagantly bad in every particular.

The small series of cases herewith published are all the cases normal at the time of operation which I have had leaving hospital, since I received the *Indian Medical Gazette* on 16th April 1910 up to the 1st of June, the date on which the publishers go to press with the July number of the *Indian Medical Gazette*. They are not sufficient for a deduction, but they are sufficient to put side by side with the cases published by Major Kilkelly and from which the reader can form an opinion.

I have had too many competent visitors from India, America and elsewhere, who spent a sufficient time with me to see every detail from the patients arrived in hospital until they left it, and who know that I conceal nothing from them, to have the slightest fear of the future of this operation. Extraction of cataract in the capsule is not the "house of cards" which Major Kilkelly thinks.

It is interesting to compare the scientific attitude of Major Kilkelly with that of a number of distinguished American ophthalmic surgeons who did me the honour of coming half way round the world and of spending a season with me to see every detail in quantity, and on what they saw to arrive at a conclusion, Major Kilkelly knows my standing invitation to any ophthalmic surgeon to come and see and on what they see to arrive at a conclusion. Major Kilkelly did not visit me but prefers to write papers under the circumstances above detailed.

As regards the attitude of American surgeons, I quite agree with Mr. W. Arbuthnot Lane, M.S.F.R.C.S. (Practitioner, May 1910), when he says "curiously enough the great bulk of the profession in England with few exceptions seems to have much difficulty in grasping the nature of the changes I have described and in accepting my explanation of their causation. I think, this is due to the fact that they are not sufficiently interested to make themselves familiar with the state of affairs at the time of operation, and imagine that because these changes have escaped their observation they cannot possibly exist."

That is not the attitude of our surgical friends in Canada and in the United States. They are in advance of us in many ways in their methods of investigation. They attack any new problem very thoroughly and do their utmost to verify every fact by personal observation, and then they determine whether there is any truth in it or not. Trouble or expense affords no obstacle to their thirst for knowledge. They are not satisfied to accept unreservedly any statement or observation, and least of all, any opinion, and are only prepared to receive it when they themselves have either seen it or are satisfied as to its accuracy. They have no respect for so-called authority, and part with the innumerable surgical creeds which continue to control us as readily as their business men "scrap" machinery the moment a better mechanism has been devised. It is this attitude of the American surgeon that is exerting such a magnificent influence on the surgery of that country, and is in my opinion, making them the most progressive surgical body in the world. Let us try and follow in their footsteps and remember that the mere denial of facts that are capable of the most complete demonstration is neither the wisest nor the most scientific method of disputing their accuracy.

My method of persuading men is not by a paper warfare—I prefer men to come and see every detail in quantity and to form their opinion on what they see

Compare Major Kilkelly's attitude with that of the broad-minded Americans who, after a few of their number had returned from me had a discussion, published in the *Ohio State Medical Journal* of 15th April 1910. It is sufficient to quote the remarks at that Meeting of Dr. Louis Stricker, the distinguished author of *The Crystalline Lens System*, than whom there is probably no more distinguished authority on cataract—

"I am sure this subject is full of interest to every body. It is holding the stage all over the United States and indeed not only in the United States, but all over the world. I had the pleasure, through the kindness of Dr. Ayres, of reading all the papers that were read in April before the International Medical Congress, which met at Naples, during that month of this year. One Dr. Valude, of Paris, condemned this operation in the most violent terms. He said he had tried it and condemned it most violently. On the next page is an article by an English surgeon, resident in Siam, who says he had done the old operation a thousand times and has

done the new Smith operation 800 times, that under the old operation he had about 3 per cent loss of vitreous and under the new he had 10 per cent that he had not had a single case of detachment of vitreous. These two gentlemen typically represent the opinions prevalent over the scientific world. To see this operation the first time the mind revolts. All your study in anatomy tells you that this must be wrong. But the oftener you see it the more you are convinced it is the operation of the future, and, although older men may not be able to put their prejudices aside and accept the new operation, I am satisfied that it is only a matter of time until we will use it as the operation of election."

"I have seen Dr. Greene do this operation 18 times, and in only one case that I can remember was there any loss of vitreous. I examined 35 people at the home (The old soldier's home), and the results were simply marvellous. You never get such results by the old operation, and I did not see anything in the operation that did not cause me to wonder at the results. It is a thing that is new and the men (old soldiers) are very much interested in this subject, and I feel that time will prove that it is the operation of the future."

Cataract Operation Cases recently done by Lt-Colonel Henry Smith, I M S

No	NAME	Condition at time of operation	Notes of operation	Time in Hospital	Post operative complication	Vision	Lens
1 } 2 }	Badhshah	Normal	No complication	10 days	Nil	$\frac{6}{5}$	+10 50
3	Nihal	,	,	11 days	"	$\frac{6}{5}$	+10 00
4	Chet Ram	,	"	10 days	Iris caught in one angle of wound	$\frac{4}{5}$	+10 50
5	Subadai Nehal	"	"	10 days	Nil	$\frac{6}{4.50}$	+10 00
6 } 7 }	Mt Dooli			11 days	"	$\frac{6}{4}$	+10 50
8	Harbans Singh	,	"	12 days	,	$\frac{6}{4.50}$	+11 00
9	Rajaram Sitarani	,	"	12 days	,	$\frac{6}{5.50}$	+10 00
10	Major C H Hodgkins, I M S, retired	,	,	12 days	"	$\frac{6}{5}$	+ 9 50
11 } 12 }	Mt Kaim Bibi	,	"	12 days	,	$\frac{6}{5.50}$	+10 00
13	Mukhta Bibi		"	10 days	,	$\frac{6}{5}$	+10 00

The test used for those who do not read Roman type was capacity to calculate bulls eyes supplied on a sheet by Messrs Lawience and Mayo, of Calcutta, adapted to the different distances, and which when tested with the normal eye are if anything a little more difficult than Snellen's test type. The test for those who read Roman type was Snellen's test type Number 10—(Major C H Hodgkins, I.M.S., retired), writes me the following—"with a +9.50 D lens I can read fine metric type at six metres and with a +13.0, I can distinctly see the individual hairs on the back of my hand at a distance of a foot. I have seen a good deal of ophthalmic work done and I consider a result of this sort remarkable." I examined him and all the others myself.

In all these cases the media were absolutely clear and from experience I can say that their vision six months after operation will be even better than this.

The mere denial of facts like these which are capable of the most complete demonstration is neither a wise nor a scientific policy.

This case leads me to think that we should be careful in operating for cataract unless the after-treatment is absolutely under the control of the operator.

SMITH'S OPERATION FOR CATARACT TWO NEW INSTRUMENTS

By W J WANLESS, M.D.,

MIRAJ, S. M. C.

By the courtesy of Major Kilkelly, I.M.S., Ophthalmic Surgeon, Bombay, it was my privilege with some others to witness for the first time Smith's operation performed by Lt-Colonel Smith himself. I had done this operation off and on for several years performing it about 150 times in over 3,000 extractions and with varying degrees of success. Since

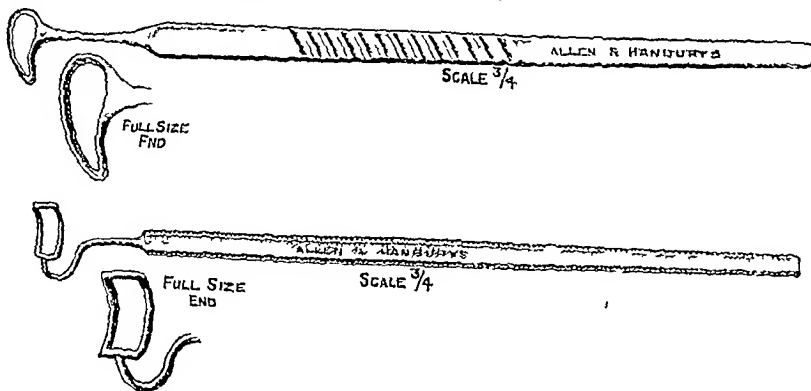
method which I had previously practised for several years. I am satisfied, however, that the results on discharge from the hospital are quite as good and probably 5 per cent better than formerly. At all events we have had less post-operative trouble and the patients have been able to leave the hospital on the average of two days earlier than previously. I feel justified therefore in continuing the operation.

The *Lid Elevator*, herewith illustrated, is the result of a suggestion by Captain Oxley, I.M.S., to secure a lid elevator that will not slip in drawing the lid forward, give a little wider exposure and cause less pain than a blunt hook. Captain Oxley suggested a forked elevator or kind of double strabismus hook. I have had the forks united on the free end and the handle made square instead of flat.

The *Extractor* is an attempt to confine in an instrument the advantages of a strabismus hook as to the point and heel and having also in it an instrument that can be used to lift the lens out of the conjunctival sac after delivery from through the corneal wound.

The use of these two instruments has in my hands made the operation considerably easier and I have had fewer vitious losses since I began their use. The lid elevator is easily placed, is easily held by the assistant and once placed will not slip. Moreover it causes less discomfort to the patient than a strabismus hook.

The extractor takes the place of a blunt hook and when the lens is delivered it naturally falls into the shoe-shaped ring and is lifted out. In cases in which the lens capsule bursts in exit and one is unable to readily secure the capsule, I make use of the intracapsular syringe described in the *Indian Medical Gazette*, April, 1905. I have had one of the nozzle points bent into the shape of a shepherd's crook. A similar point can be used on McKeown's syringe. With the contractor still *in situ* the point of the syringe is hooked behind the corneal wound up



February last I have done something over 500 cataract extractions and in about 90 per cent of the cases I have performed Smith's operation. I have not had time to compare the results of this series with a similar number of extractions with the capsulotomy intra-capsular irrigation

under the lid and remaining cortex washed out. These cases with burst capsules are the ones which make trouble in Smith's operation when the accident occurs. If one is fortunate enough to get out the remaining capsule the cortex usually comes with it. In this one often fails

however and I have found it quite safe and of very considerable advantage to wash out the cortex with saline solution as one does in the capsulotomy, intracapsular irrigation method. Post operative irritation is thus diminished.

TUBERCLE OF THE LUNG IN THE HUGHLI JAIL AND THE HUGHLI POLICE

By D G CRAWFORD, M B

LIEUT COLONEL, I M S,

Civil Surgeon, Hughli

THE question of the frequency of tubercle in India, especially in Bengal, has lately attracted considerable attention. It was formerly thought that tubercle was an uncommon disease in India, but this idea has long been found to be incorrect. It is now admitted that, in Bengal at least, tubercle is a common cause of death. When serving as Civil Surgeon of the 24-Parganas, ten years ago, I was impressed by the great frequency of tubercle in Calcutta, among the classes attending the Sambhu Nath Pandit Hospital, especially among two different races, Eurasians of the lower classes, and labourers immigrating from up-country.

Tubercle is not separately shewn in the district returns of deaths, which comprise only nine heads: cholera, small-pox, plague, malarial fevers, diarrhoea and dysentery, respiratory diseases, injuries, measles and chicken-pox, and other causes. Nor would it be of much use if a separate column for tubercle were introduced. For, under our present system of registration, the only system yet practicable, under which all deaths are registered at police stations by village watchmen or *chowkidars*, and the diagnosis rests entirely upon the statements of that useful but humble and uneducated official, not one of the deaths from tubercle would ever get registered under the correct heading. Tubercle is a general disease, and, of the nine headings under which deaths are registered, should appear under the last, "other causes." As a matter of fact the great majority of deaths from tubercle are probably registered under the head of malarial fevers, a few with slightly nearer approach to accuracy, under respiratory diseases.

It is only where bodies of men are under close and constant observation, where all cases of sickness and death are regularly recorded, that we can get any approach to accuracy in statistics. No system of registration can be completely accurate, for, in many cases, a man suffers from more than one serious disease at the same time. His death can only be registered under one head, whereas it may be due, not to any one disease in particular, but to a combination of two or more.

Of such organised bodies of men, whose vital statistics are recorded carefully, and on the

whole fairly accurately, there are three in India, the army, the police, and the jail population.

Of these three, the army gives the most accurate statistics. The members of each unit are usually stationed together in one body, and are under careful and continuous medical observation. Those "discharged otherwise," on sick leave or pension, can usually be followed up, if desired, and the ultimate results ascertained.

The vital statistics of the police are much less accurate than those of the army. The members comprising each unit are usually split up into from twenty to fifty small detachments, with one comparatively numerous body at headquarters. Many cases of sickness at outstations never come under treatment at all. Take the case of a *thana*, twenty or thirty miles from the jail. If a man there stationed is slightly ill, it is not worth while to send him to the hospital at headquarters. If he is seriously ill, it is, especially in the rains, impossible. It is, however, possible to follow up the cases "discharged otherwise" and sent on sick leave, and to ascertain the result.

The jail gives statistics which may be considered accurate, for the time the prisoner remains in confinement. Every prisoner must be accounted for, as sick or well. In almost every case of death an autopsy is performed, and an opportunity is given for correcting after death what may have been an erroneous, or an incomplete and only partially correct, diagnosis during life. On the other hand, a sick prisoner who is "discharged otherwise" on release, on the expiry of his sentence, disappears from view altogether, and cannot be traced.

The vital statistics of Hughli jail are available, more or less, for forty years past. For the last nine years, most of which I have myself been in charge, they have been very carefully recorded, a *post-mortem* examination having been made in every fatal case, with the exception of two cases of cholera. I have thought, therefore, that it might be of interest to compile some notes upon the incidence of tubercle among the convicts of Hughli jail during this period.

The district of Hughli lies upon the west bank of the Bhagnathi or Hughli river. It is low-lying, little above sea-level, and therefore incapable of efficient drainage, and intersected by many "dead" rivers, more or less silted up. The district is thickly populated. At the census of 1901 there were 881 persons to the square mile in the whole district, but in certain areas the proportion was much higher, *eg*, Serampur *thana* (including the town), 4,255, Hughli *thana* (including the town), 1,826, Chauditola *thana*, 1,381, while the least thickly populated areas were Balagarh and Polba *thanas*, with 538 and 543 persons respectively to the square mile. The death-rate of the district is usually higher than the birth-rate, and the population is only maintained at its

present level by constant immigration. The climate, like that of Lower Bengal in general, is moist and warm, eight months of moist heat, with four months of damp, rather than of bracing cold. The average rainfall for the past forty years is about 54 inches, varying from 39 in 1873 and 1874, to 72 in 1899 and 1900. Tubercle is extremely common, both among patients attending the dispensary, and among the police, who are chiefly recruited from up-country, from Bihar and the United Provinces.

The jail stands on the west bank of the Hughli river, immediately south of the Jubilee bridge, where the Bandel-Naihati branch line of the East Indian Railway crosses the river. The site is a good one, being well raised, in comparison to most of the town. On the other hand, while the jail is bounded on the east side by the river, which gives a broad clear open space in this direction, on the other three sides it is surrounded by densely crowded blocks of town, which come within a few yards of the jail walls on the north and south, on the west a narrow strip of garden intervenes between the jail and the town.

The buildings are old. The present buildings were begun in 1814, and most of them were finished in 1816-17. A plan of the jail, dated 1845, shows six out of ten ordinary convict wards now existing, another plan, dated 1864, shows much the same buildings as are now occupied. So we may safely say that one half of the wards are nearly a century old, the other half fully half a century. The floors are raised only about one foot above ground level, and in all wards, except the hospital, the sleeping places, built of brick, are arranged in four rows between the opposite sides of the wards. The hospital is slightly more raised, about eighteen inches, it is provided with iron beds, which are arranged in only two rows. The jail enclosure and grounds are well drained, and, as is usually the case in jails, the system of dry earth conservancy is carefully carried out. Apart from the two last points, however, the arrangements cannot be considered satisfactory, and would seem calculated rather to encourage than to prevent the development of tubercular disease.

For the twenty-six years, 1870 to 1895, tubercle is shown in the jail returns under the head of "phthisis and scrofula." The first two years give no less than 83 admissions, with six deaths, under this head, 40 admissions and four deaths in 1870, 43 admissions and two deaths in 1871. From the very small death rate it is probable that most of these cases were not suffering from tubercle of the lung. Many cases of enlarged glands were probably included under this head.

The next five years, 1872 to 1876, give 70 admissions with 24 deaths, a much higher death-rate. In the eleven years, 1877 to 1887, fifteen admissions and nine deaths are shown. And in the last eight years of this period, 1888

to 1895, no admissions and no deaths are recorded under this head. The whole period of twenty-six years give 168 admissions, more than half of them in the first two years, with 39 deaths.

During the last fourteen years, 1896 to date, tubercle forms a separate heading in the jail returns. The cases shown as tubercle, probably for the whole period, certainly for the last nine years, have all been cases of tubercle of the lung. It will, however, be best to confine ourselves to the last nine years, from January 1901 to October 1909, which coincides with the period of which I have personal knowledge.

The five years, 1896 to 1900, show fifteen admissions and eleven deaths from tubercle, of which eleven admissions and nine deaths took place in the last two years, 1899 and 1900. Practically only fatal cases appear in the returns. In giving over the *post-mortem* records of these years, however, I find it mentioned that tubercle was present in the lungs in four cases returned as deaths under other heads, one of bronchitis in 1898, two of pneumonia and one of multiple nemitis in 1899.

The admissions and deaths from tubercle of the lung during the last nine years are tabulated in the following table, No I. The figures in the jail returns refer to convicts only. But during the last nine years no undetained prisoner has died of tubercle in the jail.

TABLE No I

Admissions and Deaths from Tubercle—Hughli Jail, 1901-1909

YEAR	Daily average strength	Total admission to Hospital	Admission for Tubercle	Percentage Tubercle to total	Fatal deaths	Deaths recorded from tubercle	Other deaths in which tubercle found, P. M.	Total two last columns	Percentage tubercle deaths (two columns) to total deaths
1901	368	996	4	0.40	30	32	4	6	20.00
1902	365	667	8	1.20	13				
1903	298	596	23	3.86	12	4		3	23.07
1904	370	451	11	2.41	7			4	33.33
1905	368	397	1	0.25	5		1	1	14.28
1906	371	397	13	3.27	12				
1907	316	331	13	3.62	13	4	1	5	41.66
1908	332	384	8	2.08	5	3	2	4	30.77
1909 (Ten months)	315	277	4	1.44	1		1	3	60.00
Total	344 (average)	3,499	84	1.86	98	18	9	27	27.77

The cases in which tubercle was found *post-mortem* in patients returned as dying from other diseases were as follows:

- 1901 Four cases of dysentery.
- 1902 Nil
- 1903 Nil
- 1904 One case of diarrhoea
- 1905 Nil

1906 One case of anæmia (a noncriminal lunatic)

1907 One case of dysentery, and one of cerebro-spinal fever. The latter case had been in hospital for tubercle for some time, when attacked by the second disease

1908 Nil

1909 One case of pneumonia

It should be noted that a case received from Serampur sub-jail in March 1904, dying from dysentery, which proved fatal three days after admission, was, by orders of the Inspector-General, charged against Serampur sub-jail, and does not appear in the Hughli jail returns. In this case tubercle also was found *Post-mortem*. On the other hand, one case, shewn as dying of tubercle in April 1907, did not actually die in jail, but was released, moribund, to die at home, under rule 504 (a) of the jail code. Such cases are always shown as deaths in the jail returns. In another case of tubercle, which proved fatal in December 1907, the immediate cause of death was cerebral hæmorrhage.

Table No II, below, shows the total number of admissions from tubercle during the nine years, 84 in all, with the result in each case, as shown in the jail records.

All cases which remain under treatment on the last day of the year are shewn twice or oftener in the jail annual returns, in the year of admission, and also in each succeeding year until their final discharge. It has, therefore, been necessary to insert a column, "remaining under treatment," both at the beginning and the end of table No II, in order to show the true number of admissions. This applies also to table No I.

TABLE NO II

Admissions for Tubercle—Hughli Jail, 1901-1909

YEAR	ADMISSION FOR TUBERCLE			Discharged cured	Discharged otherwise	Died	Remaining at end of year	TOTAL
	Remaining	Admitted	Total					
1901		4	4	1	1	2		4
1902		8	8	1	1	3		8
1903	3	23	26	1	11	4	3	26
1904	3	11	14	8	9		4	14
1905	4	1	5	1	3		1	5
1906	1	13	14		4	4	6	14
1907	6	12	18	2	10	2	4	18
1908	4	8	12	2	6	3	1	12
1909	1	4	5		4		1	5
(Ten months)								
TOTAL	22	84	106	16	49	18	23	106

One individual appears in the table for no less than five consecutive years, from his admission in 1903 to his release, *in statu quo* in 1908. Another individual accounts for no less than four admissions, being "discharged otherwise" on each occasion. He was originally convicted at

Midnapur, and for purposes of police enquiry transferred first to Alipur, where it was detected that he was suffering from tubercle, and on admission to hospital an entry was made on his ticket that he was in advanced stage of the disease, and then to Hughli, where he was admitted to jail on 30th July 1906, and to hospital on the following day. On 4th September 1906 he was sent to Aianbagh sub-division, for police enquiries, and was readmitted from Aianbagh on 15th September 1906. On 16th April 1907 he was again sent to Aianbagh, this time to give evidence, and was readmitted at Hughli on 19th May 1907. On 12th October 1907 he was transferred back to Midnapur, under orders of the Inspector-General, to serve out the remainder of his sentence. On 4th June 1909 he was again received from Midnapur, as a police register transfer prisoner, to be released at Hughli, and was finally released on expiration of sentence, on 1st October 1909. During the three years during which I was acquainted with his case, the disease, though well-marked, appeared quite stationary.

Out of the total number of 84 admissions, it will be seen that 49 or 58.33 per cent considerably over one-half of the whole number were "discharged otherwise." These cases were all discharged from hospital on leaving the jail, all, except the individual above mentioned on his first three discharges, when he was transferred, on release. In most cases a note has been made of their condition on discharge, the most frequent notes being *in statu quo*, or "doing well," some times both. In one case only is it noted that the patient was in bad condition at the time of release. This patient was admitted to jail suffering from the disease in an advanced stage, and after undergoing a short sentence of one month's imprisonment, which he spent in the jail hospital, was released on expiry, certainly no better, perhaps worse, than on his admission. In another case, also sent straight into hospital, suffering from tubercle, in admission to jail, it is noted that, when "discharged otherwise" on release, after six months in the jail hospital he had gained 33 lbs in weight from 73 to 106 lbs, his original weight having been increased by nearly fifty per cent.

The sixteen cases discharged cured were all sent to the convalescent gang on discharge from hospital. Most of them were released soon after their discharge, and it is not possible to give any information as to their further progress. Two cases, however, were under observation for several months after their discharge from hospital. One was released, in good health, thirteen months after his discharge from hospital, having served most of that time as a convict overseer. The other was transferred to Alipur, after having been at hard labour in Hughli jail for several months, without ill-effect, fourteen months after his discharge from hospital.

TABLE NO III

Admissions for Tubercle—Hughli Jail 1901—1909

YEAR	Total admission for tubercle	PERIOD PASSED IN JAIL BEFORE ADMISSION TO HOSPITAL					TOTAL
		Direct	Under one month	1—2 m	2—6 m	Over 6 mos	
1901	4			1		3	4
1902	8	2	2	3	1		8
1903	23	9	1	3	3	4	23
1904	11	8	1			1	11
1905	1	1					1
1906	13	6	2	1	3	1	13
1907	12	8	1	1	2		12
1908	8	4				4	8
1909	4	4					4
TOTAL	84	42	10	9	10	13	84

The above table, No III, is, I consider, the most important of the three, with respect to the question whether the conditions of life in Bengal jails are conducive to the spread of tubercle. As I have mentioned above, Hughli is, by no means, a model jail, and is probably worse, not better, than the average. This table gives the period passed in jail, before admission to hospital, for tubercle of the lung, of the 84 cases of that disease who have been admitted during the past nine years.

The first point worthy of notice is that in forty-two, or exactly one half of the total number of admissions, tubercle of the lung was detected on their first admission to jail, and they were sent straight into hospital for that disease. None of these cases had been more than two days in jail before their admission to hospital. In these cases, at least, there can be no question of the conditions of jail life favouring the development of the disease. All of them had already developed the disease before admission.

Ten more cases were admitted to hospital for tubercle within one month of their admission to jail, and nine more between one and two months after conviction. I think that we might fairly claim that these cases also had begun to develop tubercle before admission, and that the incipient stage of the disease was overlooked, not being well marked, when they were admitted. But this, of course, cannot be stated with certainty.

There remain ten cases in whom the disease was diagnosed between two and six months

after admission to jail, and thirteen who had been in jail over six months. These cases probably, the latter almost certainly, have developed the disease in jail.

We may, therefore, state that at least one-half, certainly, of the total number of cases, and probably nearly three-fourths, were suffering from tubercle before admission to jail. Somewhat over one fourth, certainly, at most possibly one-half, developed the disease after admission.

Of the twenty-seven cases in which tubercle was found in the lungs on *post-mortem* examination, as shown in table No I above, (including nine whose deaths were returned as due to other causes,) the date of detection of the disease and admission to hospital was as follows:

Direct on admission to jail	6
Under one month in jail	3
One to two months in jail	7
Two to six months in jail	5
Over six months in jail	6
	27

The above tables, like those in the printed annual returns of the jail department, include as I have stated above, convicts only. Cases admitted to hospital while under trial, and subsequently convicted, are included in the tables. During the last nine years there have, however, been six admissions for tubercle among other prisoners. Of these six, five were under-trial prisoners, all of whom were sent direct to hospital on admission to jail, and all of whom were discharged otherwise on being released. One, however, was sent on discharge to the Imambara Hospital, Chinsura, and died there shortly afterwards. The sixth was a civil prisoner, admitted to hospital in 1904, eighteen days after his admission to jail. He also was "discharged otherwise" on release. Had these six cases been included in Table No III, they would have appreciably increased the proportion of direct admissions.

Tubercle in the Hughli Police Force

The Police Force of Hughli district consists of about eight hundred men, the majority scattered about the district, stationed in thirteen *thanas* or police stations, nine outposts, and fourteen town outposts, with a considerable body, varying in number from one to two hundred, at head quarters. Up to 1906, the force was some 670 strong, the town outposts being manned by "town *chokidars*," who though mostly men of much the same class as the constables, served on less pay, were not considered as part of the regular police force, and were not eligible for admission to the police hospital, or for sick leave. The substitution of about 120 constables in the place of town *chokidars*, in the first half of 1906, accounts for the great increase in the admission rate in that year.

The following table shows the admissions for tubercle of the lung in this force during the last five years —

TABLE No IV
Admissions for Tubercle—Hughli Police

Year	Total admissions, all causes	ADMISSIONS FOR TUBERCLE				
		Admitted	D Cured	D O Sick leave	D O Invalid ed	Died in hosp
1905	352	5		4		1
1906	510	8	1	7		
1907	659	10		10		
1908	396	12		11	1	
1909 (10 months)	378	10		10		
TOTAL	2,295	45	1	42	1	1

Out of the 45 admissions, I find that eight individuals figure twice in the list, having been discharged otherwise and sent on sick leave, rejoined duty on return from leave, and again having been re-admitted to hospital for tubercle, after having been at duty for some time. The actual number of individuals admitted is, therefore, 37.

Of the 45 admissions six, including one admitted twice, were Bengalis, and 39, including seven admitted twice, were up-countrymen, from Bihar, the United Provinces, or Oudh. The proportion of up-countrymen in the force is 65-70, of Bengalis 30-35. The up-countrymen, therefore, form two-thirds of the force, but contribute over five-sixths of the admissions.

Musalman contribute eighteen admissions, of whom six were twice admitted, Hindu 27, of whom two were twice admitted. The proportion of Musalman is only 15 per cent, to 85 per cent Hindus—Musalman, therefore, while forming less than one-sixth of the force, contribute two-fifths of the admissions.

Out of the forty-five admissions to hospital, one was discharged cured, one died in hospital, one was invalided, and forty-two were sent on sick leave.

Among the forty-two sent on sick leave the following results were traced —

Died at home, (after periods varying from under one month to over eighteen months)	9
Transferred to other districts while on leave	2
Resigned while on leave	2
Invalided on return from leave	3
Rejoined duty, apparently well	15
Still on leave, at date of writing	11
	42

I should here make a few remarks on the symptoms and diagnosis. All these cases, diagnosed as tubercle of the lung, suffered from increase of vocal resonance, with some, usually

slight, dullness, in the apex of one or other lung, generally the right lung. Many of them also suffered from hæmoptysis, more or less. In none, except in the one who died in hospital, did I detect crepitations. Those discharged to duty on return from leave, all looked well, and said they felt well, and I could no longer detect dullness or increase of vocal resonance in their lungs. One of these men, however, came back to hospital only three days later, complaining of a return of hæmoptysis.

After these remarks, I will give the results, as far as I can, in the fifteen cases who rejoined apparently well, and who were sent back to duty.

Sent on sick leave for tubercle a second time	7
[of these seven, one was at duty for only three days, the others for 3, 4 (in two cases), 5, 21 and 23 months respectively]	
Re-admitted after two months and discharged cured	1
Transferred to another district, soon after rejoining	1
Still at duty	6

The six who are still at duty have been so for periods of 25, 16, 14, 13, 5, and 2 months respectively. The last has been twice on sick leave for tubercle, and is the man who was at duty only three days after his return from sick leave on the first occasion.

The one case shown as discharged cured is a man who was sent on sick leave for tubercle in 1905. Two months after his return, he was again admitted for tubercle, on 5th October 1906, and, after eighteen days in hospital, was discharged cured. I was then on leave myself, so have no personal knowledge of his condition on his second admission. On enquiry I find that he was subsequently transferred to another district, so his present condition cannot be ascertained.

Of the seven sent on sick leave a second time, all of whom are of course already included in the lists above, the following are the results —

Transferred to other districts while on leave	2
Rejoined duty, and transferred soon after	1
Invalided on return	1
Rejoined and still at duty (two months)	1
Still on leave, only recently gone	2

I think that the facts reported above, as regards tubercle in the Hughli police, justify the following deductions —

- (1) Men recruited from up-country, serving in Bengal, often develop tubercle in this province.
- (2) If the cases are detected fairly early, rest and change of air to their homes, for a reasonably long period, not less than six months, or better still a year, in a considerable proportion of cases, leads to recovery.
- (3) Cases which have once developed tubercle, and which have apparently recovered at their

homes, are very likely to break down again on resuming duty in Lower Bengal

(4) Therefore, men who develop tubercle in Lower Bengal, and who recover when on leave, should be transferred to a Bihar district, where they will stand a fair chance of keeping good health, and continuing on duty as more or less useful public servants

The number of such cases is never likely to be very large. During the last year, a number of up-countrymen, who had served in this district for several years, were transferred to a Bihar district. It is to be hoped, for the sake of the police serving in Lower Bengal, that such transfers may continue to be carried out yearly. As a rule, men should not be transferred until they have served a certain number of years, five or six, in a Bengal district. But every rule has its exceptions, and men who have once been attacked by tubercle might well be made exceptions to this rule, and, if they recover at home, transferred as soon as they are able to rejoin duty.

A Mirror of Hospital Practice.

THE DIAGNOSIS OF TYPHOID FEVER

By J. MORISON,

CAPTAIN, I.M.S.

By the kindness of Lt.-Colonel Thompson, D.S.O., R.A.M.C., and Captain Blackwell, R.A.M.C., observations were made on a series of cases of typhoid fever which, in March and April 1909, came in quick succession into the Station Hospital, Lucknow. As the vicissitudes of the service render it unlikely that the writer will have equal opportunities, again, a tabular view of the cases have been drawn up.

The observations were originally made to correlate the bacteriological work with that at the bedside and to secure that as far as possible no case of enteric fever should escape detection.

A culture from the blood was made in ox-bile as soon as there was a suspicion that a case might be typhoid fever. The fact that a febrile case came from certain infected lines was amply sufficient to justify a culture from the blood. These were not infrequently obtained on the morning after the patient came to hospital, and in one case on the third day of the disease. The first day on which the patient had felt the slightest headache or malaise was taken as the first day of illness, although the patient may not have reported sick for several days thereafter.

From the bile after incubation the surface of a Comrad-Dingalski plate was inoculated and the cultures obtained on this medium were tested with anti-typhoid serum, subcultured on agar and again tested with an antiserum.

The sugar tests confirming the diagnosis were in most cases kindly carried out by Major D. Harvey, R.A.M.C., Naini Tal. They are not generally necessary as, if a culture agglutinates in the characteristic manner when tested with a dilute, but potent anti-typhoid serum, it will, in the writer's experience, pass the fermentation tests satisfactorily.

Some of the blood drawn for the culture was used for the first Widal's reaction and to eliminate unsatisfactory partial results, a reaction that did not show by the microscopic method complete agglutination in a dilution of 1 in 100 within two hours was considered negative. The test was in a few days repeated if the diagnosis had not already been arrived at by the cultural method. The strain of typhoid used at first was kindly supplied by the Director, Central Research Institute, Kasauli, but after the first few cases the remaining Widal's tests were carried out with a strain obtained from the blood of Case No. 4 II.

The clinical signs and symptoms afforded many points of interest.

The initial headache and the rose spots were by far the most constant symptoms. Rigors and epistaxis were rare. In just under half the cases could the spleen be felt and in half also the abdominal reflex was absent. Constipation was more frequent than diarrhoea. Bronchitis was rare, the dry heat of the season may have had a beneficial effect on this symptom.

The temperatures noted were in each case the highest recorded during the first four days in hospital and the pulse figures were those registered at the same hours. The two columns bring out the comparatively slow pulse of the early stages of the disease on which Major Rogers, I.M.S., lays such stress as an aid in differentiating typhoid fever.

The bacteriological indications are shown in columns 2, 3, 4 and 5. The cultures from the blood and the Widal's reactions on the first occasions on which the blood was examined indicated the diagnosis in twenty-four cases out of twenty-nine. If, moreover, four cases in which a negative Widal's reaction was associated with a contaminated blood culture. The latter an accident which with care in sterilising the bile and the syringe should never occur. It will be seen that the cultures were successful eighteen times, and the Widal's reaction eleven times, and that the combined method gave the diagnosis at once and in no uncertain manner in twenty-four cases out of twenty-five.

THE TREATMENT OF FILARIA MEDICINENSIS BY SUBCUTANEOUS INJECTION OF CHINOSOL

By HUGH W. ACTON, *Lieut., I.M.S.*,
59th Scinde Rifles, F.F., Peshawar

DURING the hot weather of this year 1909, and last, several cases of this parasitic disease occurred amongst the Pathan recruits of the various frontier regiments stationed here and came directly under my care, whilst holding officiating charge of their regimental hospitals. These youths had been infected in their villages, and the disease manifested itself during the earlier months of the hot weather season by the worm coming to the surface to deposit her embryos, a fair number of cases were also observed amongst the followers of the various transport corps, etc., who probably had been infected during the Mohmand Expedition of 1908. At first these cases were treated by the somewhat primitive method of applying cold water compresses over the swelling, until the worm could be induced to come to the surface to extrude her embryos, and when this process of parturition was accomplished a sterilized piece of wood was used to wind her out, and by these means was gradually extracted from the tissues. The treatment, though very simple in its performance, occupied a stay in hospital, for some 30-40 days, and if the greatest care and gentleness were not exercised in its extraction, the case frequently ended in violent suppuration. This calamity, although beneficial in the fact that it invariably caused the death of the worm, gave rise at the same time to numerous abscesses and sinuses, which took an indefinite time to heal. When resolution did occur, the amount of inflammatory tissue thrown out during the suppurative processes, underwent fibrosis and contraction, and often greatly interfered with the movements of the joint in the immediate vicinity of this cicatricial tissue. A few trials of the above method were sufficient to abandon it for those that were introduced by the French Surgeon Emile. His method consisted of injecting a 1-1000 solution of Mercury Perchloride, by means of a Pravaz's syringe, in the body of the worm when protruding, if however it was embedded in the subcutaneous tissues, 20-40 minims were injected around the palpable coils. Although being a great advance on the former method of treatment, yet at the same time was not infrequently associated with failure. The difficulty of injecting a few minims of this solution into the body of so thin and fragile a worm required the greatest care in manipulation, for if the pressure happened to be too great, or the point of the needle had entered its uterus, the tension of this fluid immediately caused the frail body to rupture, with the almost inevitable sequence of suppuration. In the case where the worm was embedded in the subcutaneous tissues and had

not as yet reached the surface, palpation of the coils required a certain amount of practice, so as to be able to hit one off with the point of the needle, and if the aim happened not to be true, the worm frequently survived and migrated to a different situation.

If suppuration was actually occurring when the case was first seen, the subcutaneous injections of the Perchloride made no difference whatsoever to this process.

It is difficult to see how this method could act when injected into the tissues, on account of the immediate formation of an insoluble Mercury albuminate which would at once render the solution inert. About this time the newly lauded method of injections by Chinisol for the treatment of carbuncles and other similar suppurative-gangrenous processes was being given a trial, and being struck by its powerful anti-bacteriocidal action, and its toxicity to lower forms of life, a trial of it was also given in the treatment of this parasitic affection with the following very satisfactory result. Before proceeding any further a short description of this salt, with its doses, etc., would perhaps not be out of place. Chinisol is a Potassium salt of a compound oxychinoline and sulphuric acid, it forms a yellowish powder, which is soluble, diffusible, and has a sharp taste. It is non-poisonous in the quantities usually employed (i.e., 5 grains t.i.d.) Being non-hygroscopic it keeps well, furthermore it is a powerful deodoriser, and does not coagulate albumen.

It is a very powerful bactericide and antiseptic, 15 grains to the pint of water is equivalent in every respect to a 1-40 solution of carbolic acid, an important point to note is that it should always be dispensed in pure soft water, any hardness in the water tends to split the chinisol into an oxychinoline which is toxic, therefore it is better to use distilled water. For subcutaneous injections one drachm of a one per cent solution is used, but for a gargle or spray 1-4 grains in an ounce of water diluted with an equal quantity of warm water is usually employed. When used in connection with this parasite, an equal quantity of this one per cent solution is injected on all four sides of the swelling, the total quantity used is one drachm, the object being to bathe the worm in this fluid and by so doing, kill it. The skin is first carefully sterilized in the usual manner, the strong mixture advocated by Cheyne (1-20 carbolic and 1-1,000 Hg Cl₂ eq parts), being the antiseptic employed, and compresses of 1-2,000 Hg Cl₂ are then applied for 12 hours. A long injection needle is introduced as near as possible to the swelling, and kept about half inch below the skin, parallel with and along the whole length of the swelling. The needle is now slowly withdrawn, and in doing so 15 mins of this 1 per cent solution is evenly distributed along its track. When the point of it has nearly been withdrawn, it is then swung

round and introduced at right angles to the first line of injection, when another 15 mins are injected on its withdrawal. This process is repeated on the opposite side, so that the injection area forms a square and includes the whole of the guinea-worm swelling. When no suppuration was present, uniform results were obtained by this method, if the guinea-worm had not come to the surface a single injection of a one diachm given in the above fashion caused its immediate death, and in four or five days the whole swelling had disappeared owing to the fact that the worm has been absorbed like a piece of aseptic catgut. On the second day after the injection the man was usually fit for his ordinary work. If the worm, however, had reached the surface, but no sepsis was present the injection into the tissues killed the worm and it would safely be wound out the next day, and if by chance it broke during this process no harm was done, the worm being absorbed *in situ* and the small superficial wound rapidly healed in a few days. If suppuration was present and the case seen early, the injection killed the worm if not already dead, and markedly influenced the suppurative process, so that healing of the wound be anticipated in eight to twelve days.

In all 19 cases have now been treated by this method, and in only one case did failure occur, and that was owing to the fact that it was not recognised that another worm was lying some three inches apart from the one which had come to the surface. The latter was rapidly cured, whilst the former gave rise to an abscess in the gastrocnemius muscle before it was detected. Otherwise in every case treated by chinosol injections, the filaria has been killed outright and the time occupied in the treatment is at the most a fourth of that occupied by the first-mentioned method, whilst its certainty, and its easier asepsis commends it as being far superior to that which Emily advocated.

A CASE OF HYMENOLEPIS NANA

By J. DAVENPORT JONES, M.D. (LOND.),

CAPTAIN, I.M.S.,

Civil Surgeon, Sholapur

In the April 1909 number of the *Indian Medical Gazette*, Major A. Clayton Lane, I.M.S., refers to two cases in which he discovered the ova of this worm, but states that he was unable to find the parasite itself. In the following case I was able to secure a considerable number of *Hymenolepis strobila*, and although the patient had been in England, I have no doubt the infection took place in India.

R. H., European boy of five years, had been suffering from general ill-health for several months, and as there was some irritation about the perineum, had been treated by several

doctors with santonin, apparently without result.

In February last when examining some mucus deposit in his urine, I found numerous eggs of a tænia, and also a few segments of a minute tape worm.

Treatment with Felix Mas in capsules resulted in the expulsion of a large number of worms, probably over one hundred. Santonin had been also tried, but appeared to be quite inert as far as this worm is concerned. Great difficulty was experienced in the detection of the parasites in the fecal matter, but after trying several methods, I found that the worms were best seen and isolated by shaking portions of the feces with water in a glass beaker held against a black background.

In most of the specimens I found that the heads had broken off, but at last I obtained a perfect head, which proved to be a typical *Hymenolepis Nana*.

Since the worm is so small that it is certain to be overlooked unless specially looked for, the above case may remind others in India to search for it, when confronted with a case which exhibits the usual symptoms of worms, and yet not clearing up with santonin. More serious symptoms are produced by *Hymenolepis Nana* than by *T. solium* and *T. saginata*, and hence it is particularly important that the condition should be diagnosed and treated.

With the exception of Major Lane's cases in which he discovered the eggs of *Hymenolepis Nana*, I can find no reference to this parasite ever being found in India before.*

NOTES ON A CASE IN WHICH A CENTRAL PLACENTA PRÆVIA WAS COMPLETELY SEPARATED NATURALLY WITH RECOVERY OF THE MOTHER †

By A. H. NOTT, M.D.,

I.T. COLONFI, I.M.S.,

Civil Surgeon of Howrah

The following case is, I think, worthy of notice as it is generally taken for granted that natural efforts alone are unable to terminate a case of Placenta Prævia Centralis, at least, without the most serious jeopardy to the life of the mother, it is generally considered that artificial interference in the course of

* According to Castellani and Chalmers (*Tropical Medicine*, p. 389), the *Hymenolepis diminuta*, of Rudolphi, is a rat parasite in Ceylon, but cases in children has been reported in United States, France and Italy. The *H. Nana* (von Siebold) was found by Bilharz in a boy at Cairo, and it is by "no means a rare parasite in man." Ten per cent of children are affected in Sicily and 4 per cent in Washington, U.S.A. There is a very similar dwarf tapeworm *H. Nana fraterna* found in rats and mice. These authors do not mention India (*op cit* p. 391)—ED, I.M.G.

† Read at Asiatic Society, May 1910

delivery is the only method by which the life of the mother, in this serious complication, can be saved. Although interference did take place at a late stage in this case, yet, when this occurred, delivery had progressed so far, and the circumstances were such, that I felt convinced, had the delivery been still further left to nature unaided, the placenta would have been expelled, and the child would have been born, without really serious consequences to the mother.

The following are the notes of the case —

O B Dissi, a Hindu multipara, who gave her age as 28 years but appeared to be much younger, was admitted into the Native Female Ward of the Howrah General Hospital at 11 A.M. on January 23rd, 1910. She complained of delayed delivery and of hæmorrhage.

The following history may fairly be relied on, as her friends were intelligent, educated people belonging to a respectable family. It appeared she was well towards the ninth month of pregnancy. During the later months of her pregnancy she had had uterine hæmorrhages at intervals of fifteen to twenty days each hæmorrhage lasting for a few hours and in amount being fairly considerable.

She had been in labour for two days before coming to hospital and luckily had apparently been examined by no native midwives. During these two days she had bled intermittently, for a few hours rather profusely, and for another few hours to a small degree only. The story of the relatives would make it out that the total loss was very great, but I have no doubt from the condition of the patient on admission that this was greatly exaggerated. Close questioning elicited that the hæmorrhage at no time amounted to flooding.

On admission the patient was found to be an undersized but well built young woman, apparently only 18 or 19 years of age, but, as she had had three previous full term natural labours, she must have been more.

There were some signs of the effects of hæmorrhage but not to any considerable degree, anæmia was not profound, there was no air hunger or mental disturbance. The pulse was quite good, beating not much over 100 per minute. She was having fairly strong and quite frequent labour pains.

On vaginal examination a baggy mass was at once met with just within the vaginal outlet completely filling the vagina, this could be seen by ordinary inspection on separating the labæ and was readily recognized as the maternal surface of the placenta.

Practically no hæmorrhage was occurring and there were little signs of hæmorrhage having occurred during the long transit, in fact, I am convinced serious hæmorrhage had ceased for some hours.

Chloroform was administered and the hand passed into the vagina. It was found the fingers could be passed all the way round to placenta which practically filled and dilated the vagina, the maternal surface presenting. The cervix could not be distinguished, it had been completely taken up. At any point towards the vault of the vagina it could be felt that the fingers passed above the mass of the placenta and, during a pain, the bag of membranes could be readily distinguished through, or immediately above, the thinned out edge of the placenta. Small parts of the fœtus could be easily made out. It was evident the placenta had completely separated all the way round from its uterine attachment and the lower segment of the uterus had retracted.

No difficulty whatever was found in pushing the fingers through, or rather immediately above, the upper edge of the placenta. The left side was selected as the most convenient for the use of the fingers, though so far

as the placenta was concerned it would have been equally easy on all sides. On rupturing the membranes the umbilical cord prolapsed and was found to be pulseless. The previous death of the fœtus had, however, been assumed as a result of the complete separation of the placenta.

No difficulty was found in bringing down a foot and completing version without insertion of the hand into the uterus. This procedure was completed so readily that no great attention was paid to the position of the fœtus in the uterus, but as the feet and arms presented, it is evident the fœtus lay in an oblique position. It would appear that the head had not engaged in the pelvis owing to the obstruction caused by the placenta and was lying toward the left flank. Previous abdominal examination had shown that there had not been a regular transverse presentation.

Delivery owing to the immaturity of the fœtus and the widely dilated lower uterine segment was extremely easy. During the extraction of the child, the placenta appeared to turn edgewise in the vagina, a considerable portion of one margin presenting as the valve with the head. On extraction of the child, the placenta, with the membranes complete, fell out of the vagina immediately, being drawn out by the weight of the umbilical cord only.

It is needless to say the child was still born. It was evidently of only about 34 weeks gestation, rather less than the history pointed to. The placenta presented no unusual appearance, it was perhaps rather thicker and of less diameter than usual, the situation in which the finger had passed through it at a point in its extreme circumference.

There was less than the usual post partum hæmorrhage and, after delivery, no anxiety was caused by any consequences of the ante partum hæmorrhage. The puerperium was almost apyrexial and the patient was discharged in a satisfactory condition on the 10th day.

There seems to me reason to doubt, if the case had been up to nature, that the head would have engaged, and the child would have been born, after some delay, but without further hæmorrhage.

I have not been able to find a reference to any case in which, self delivery in a case of placenta prævia has taken place after complete separation of the placenta with recovery of the mother. Since originally making these notes I have come across the record of a case in which the placenta and the child had been born spontaneously but, as would be generally expected with the almost immediate death of the mother from previous hæmorrhage. In India, however, I feel sure an occasional case of recovery must take place, as however doubtless, 99 out of 100 cases of placenta prævia go without really skilled assistance, and it can hardly be believed that all cases of complete previous placenta end in deaths.

It is interesting to note that Simpson did definitely recommend complete separation of the placenta in cases of central placenta prævia, at least all the text books say that he did so. Barnes appears to have recommended partial separation as an essential but not complete part of the treatment. Practically all present day text books say that in cases of partial placenta prævia the finger should be swept round the lower margin of the placenta as a preliminary to other measures.

I believe, however, that these methods are not very generally followed, it being considered such manoeuvres are likely to lead to fresh hæmorrhage. This case shows, however, that the view on which Simpson's treatment was based is a correct one. Such treatment, however, involves an absolute disregard of the life of the fœtus, and it is by no means the object of these notes to advocate it.

Indian Medical Gazette

JULY

THE HEALTH OF INDIANS IN NATAL

A RECENT number of the *Transvaal Medical Journal* (February 1910), contained an interesting article by Dr. Ernest Hill, the Medical Officer of Health for Natal—on the death-rates in the different sections of the community of Natal among whom some 95,000 Indian emigrants come under consideration. By the expression "Indian emigrant" is meant natives of India imported under indenture and their descendants, it does not include the trading class. Over 70 per cent of the Indian families occupy one room and the average number of persons per room is not less than two. "The Indian emigrant," says Dr. Hill, "has generally sufficient food of a character in accordance with his habits, his clothing is scanty and his changes of raiment few, his housing is inferior and generally overcrowded. The effects of close occupation is mitigated by the mildness of the climate which favours out-door life by day." Indian emigrants are usually employed in agriculture, coal mining, and few in manufacturing industries, and the rest in miscellaneous positions as servants and general labourers. We may quote the following extracts—

"In the five years, 1904-8, deaths were registered of 4,936 Europeans and 10,403 Indian immigrants. The rates per 10,000 living per annum are 98 and 217 respectively. Thus an Indian has had 2½ times the chance of death that a European has had, a difference greater than between the residential suburb of Hampstead and the seaport and manufacturing town of Liverpool.

"It is necessary, however, to observe that 25 deaths per 10,000 persons of Indians were due to epidemic malarial fever, as against 3 in Europeans, and if these be deducted, the Indian death-rate is just double the European.

"It is, however, necessary to mention the effect of age and sex constitution. In 1904 this was slightly in favour of Indians, necessitating for comparison the addition of about 1,130 to the rate, but since then the emigration of adults, mostly men of the European section, has increased the advantage of Indians, so that at present I estimate that perhaps 117 would need to be added to put the two groups on even conditions, or the use of a factor for correction of 1.14. Possibly the average difference through the five years would justify an addition of 1,115 to the Indian rate. The difference is practically entirely as between 'indentured' and 'free,' the constitution of the latter and of Europeans

being, I think, fairly comparable, excepting in regard to persons over 65 years, who form a small percentage only of the total.

"If the deaths are grouped as from 20 principal causes, in 13 the chance of death for an Indian is 3½ times that for a European (or, leaving out malaria, 3 times), while in 7 the chances for a European are twice as great as for an Indian.

"Eighty per cent of deaths of Indians are attributed to causes in the larger group against 50 per cent of Europeans.

"Indians are exposed in different degree to greater risk from diarrhoeal complaints, septic conditions, syphilis, malaria, tuberculosis, developmental diseases, respiratory, intestinal parasites, peritonitis and appendicitis, renal disease, accidents of parturition, general accidents, and suicide.

"Europeans suffer more from whooping cough and diphtheria, enteric, cancer, nervous complaints, diseases of heart and liver.

"In respect to infantile mortality, Indians are placed less unfavourably. Unfortunately I am confined for figures of comparison to the last two years only, in which I find that the rate for Europeans was 72, and for Indians 123 per 1,000 births. Thus the chance of an Indian infant dying in the first year is 5 against 3 of a European, contrasted with 9 to 4 at all ages.

"If, however, we look through the registration returns of England, we find that the infantile death-rate does not increase in the same ratio as deaths at all ages.

"In seeking an explanation of the difference in death rates from all causes, one considers first whether or not the difference is due to social circumstances, that is to say, dependent on prosperity or poverty and all that goes with either, in regard to food, clothing, housing, exposure to weather, sanitary surroundings, lack of facility of medical attendance, education or ignorance, etc., or whether it is in some degree racial or collectively individual, or, to put the matter differently, whether with social differences the same, the difference in mortality would be similar if the populace were homogeneous in race.

"I find that the death rate of Indians in the first five years of indenture has been three times as high as that of persons serving a further period, although age distribution markedly favours the former group.

"The death rate of the latter is even lower than that of Europeans, a fact that would lead one to think that social conditions have small influence on mortality. Although the low mortality may be of aid in estimating the importance of such influence, one must be very cautious in its use, because although the death rate is consistently low in each year, the number of persons in the group is small—only 1/18 of the total Indians, and they are practically men selected for intelligence, industry and good physique, only such having until at least quite recently been able to extend their indentures. At any rate it may be taken to indicate that such difficulties as are met in acclimatization are completely overcome in five years. It also shows that the position of indenture carries with it certain advantages, as compared with the state of freedom of labour.

"The death rate of Indians free of indenture is almost identical with that of those serving the first five years, but the age distribution, there being more young children and elderly people, is greatly to their disadvantage, that is to say, that the equality is apparent only, for it would be necessary to employ a factor which would raise the indentured rate considerably to establish a fair basis of comparison.

"For each 100 free men, there are 50 women, for each 100 indentured there are only 40. Consequently the birth rate is much lower. The proportion of indentured persons over 45 years of age is small, while deaths are practically never attributed to senile decay. So that, judged on a fair basis if other things were equal, the mortality of the indentured should be lower than that of the free Indian, instead of equal to it, as does obtain.

"There are also other factors acting to the comparative detriment of free Indians, of which the more important are irregularity of employment, dependence on crops, and small facility for medical attention, which is supplied to all indentured people, and of hospital treatment which, while provided for the latter everywhere, is available for the former practically in the larger towns only.

"These differences suggest that the Indian immigrant has some disadvantage to contend with in becoming adapted to a new country which he overcomes, in part at least, after residence of two or three years."

Dr. Hill considers that the newly arrived Indian is more liable to illness than those who have been longer in the country, and considers that on the whole the Indians are deficient in powers of resistance, and it is important to note that he does not consider the Indian coolie as received in Natal to be a good representative of his class, he having been forced to emigrate (he thinks) by difficulty in obtaining a living in India.

We are by no means convinced of this, and on the whole we think that Indian emigrants as seen collected in Calcutta, compare favourably with those left in India. Dr. Hill points out that the Indian death-rate is double that of the European in Natal, and that this is rather due to "social disadvantages" rather than to "climatic conditions."

Dr. Hill then goes on to consider the individual diseases. As to diarrhoea three Indians die of this compared with one European, and if children under one year are excluded the rate is no less than 7.5 to 1, and that too, in spite of the fact that the European in Natal has a far higher death-rate from diarrhoea than he has in his Northern home.

Ignorance and neglect of sanitary care are no doubt factors in this high rate, but Dr. Hill thinks "climatic influences" are of importance, as the death-rate from this disease is as 50 to 30

comparing indentured coolies (who get free medical attendance and hospitals), with the free Indians without such advantages, but the latter are surely more acclimatised and are more able to remove from any unhealthy locality. Malaria is a very important factor too, especially of late years, for before 1905 it was a "negligible factor" in Natal, but it suddenly became epidemic in 1905, attained a maximum in 1906 and fell off greatly up to 1908. Since the introduction of "habitual and liberal administration of quinine" to indentured Indians, the incidence of malaria among them has greatly lessened as compared with the free Indians. Tuberculosis again (a very common disease in India) is 3½ times more fatal to Indians than to Europeans in Natal. On the other hand, the Indian has the best of it as regards whooping cough, diphtheria, enteric fever and cancer.

The following extract deals with infantile mortality and is of interest —

"The European infantile mortality from all causes was 72, the Indian 1.3 per 1,000 births. The chance of an Indian infant dying in a year is 1/2 as great as a European. The chance at all ages is 2½, and the infant enjoys some advantage over the population as a whole, the chance of death in the first month is more than 2 to 1, for whereas only one third of European deaths occur in the first month, nearly half of the Indian deaths are so recorded. About two thirds of the deaths in each group in the first month are due to premature birth, injury at birth, or wasting diseases, but of each 1,000 born, 33 Indians as compared with 16 Europeans have not sufficient vitality to carry them in an independent existence.

"Once the first month is past, the relative chances against the Indian fall from 5/3 to little over 4/3.

"The general conditions of life, and the fact that many Indian women work in cane fields and elsewhere, adequately accounts for the low initial vitality of the children.

"The death rate from syphilis is 16 times and from malaria 12 times as high in Indian infants, and from bronchitis and pneumonia nearly 4, the relative chances being practically the same for infants and adults, but whereas in the population as a whole Indians die three times as fast from diarrhoeal disease, in infants the reverse obtains, Europeans having nearly 3/2 the worst of the chances, being at the greatest disadvantage in the fourth month of life. This can, I think, be confidently attributed to difference in custom. A large proportion of white mothers do not suckle their children, many more after three months or so substitute other articles in whole or part. Breast feeding is necessarily universal with Indian immigrants. With an environment entirely adverse, with scanty foul clothing, with all opportunities for sucking dirty objects, with very little care bestowed, the breast fed Indian child of the very poorest classes in the community

runs the gauntlet of intestinal trouble far more successfully than his pampered white contemporary

"A more eloquent testimony of the value of breast feeding could not be found

"If we deduct deaths from diarrhoea, we find that the Indian infant has only a very slightly better chance than the adult, but its lesser tendency to diarrhoea places it in a much less unfavourable position

"From the comparisons which I have been able to draw, I think we may with due caution deduce that the difference in mortality of these two distinct groups is brought about in part by individual lack of resistance and racial want of stamina in the Indian, an inheritance from long residence in unfavourable circumstances, with deficiency of strengthening food from generation to generation, and an acquired weakness from recent adversity, in some part to climatic changes telling against him and in favour of the white population, but principally to social circumstances, which, though better for the Indian in Natal than for the Indian in India, are an immense change for the better to the Natal European over the English at home

"Race, individual debility, and climatic change, each make some weight in the scale, but if the race were homogeneous and the social circumstances the same, there would still be a very wide gap between the death rates of the two strata in the social scale"

We think the Indian in Natal is as well off as he is in his native home, he is liable to the same fatal diseases in Natal as he is in India, and he largely escapes in Natal as he does in India certain diseases, as typhoid and cancer, as well as the epidemic diseases, such as whooping-cough, diphtheria, &c. On the whole, the Natal climate seems to suit him well

Current Topics.

THE MEMORIAL TO KING EDWARD VII

We observe that the Medical Section of the Asiatic Society have been prompt to take action on the question referred to them by the Council of the Asiatic Society of Bengal

In another column (p. 275) we reproduce a resume of the discussion at the meeting of the Society in the month of June, when the following resolution was adopted—

"The Medical Section of the Asiatic Society of Bengal is of opinion that in view of the great interest in Sanatoria for consumptives displayed by the late King-Emperor the Seventh, and of the urgency of the provision of such Sanatoria in suitable centres in India as pointed out by this Section last year. Such Sanatoria of an Imperial character and appealing to all, irrespective of race and religion, would be the most suitable objects of expenditure of a portion of the funds raised in India to commemorate

His late Majesty. They are, further, of the opinion that if sufficient funds are available a grant towards the recently proposed Institution for Research in Tropical Diseases and post graduate instruction would also be most appropriate"

The very serious extent to which tuberculosis prevails in all parts of India was well shown by the numerous papers which we published last year, and more recently we published the discussion on the prevalence of tuberculosis in Burma in the Special Supplement to our April issue

There was a time when tuberculosis seemed to deserve the title of the "whiteman's plague," but the work of the last twenty years in India has shown that while tuberculosis is declining in Europe and yielding before the advance of sanitation and more reasonable views of the nature of the disease it has, if not increased in India, certainly been increasingly recognised and is now admitted to be the most formidable of the non-epidemic diseases of India

It is also recognised that for the successful treatment of tuberculosis, especially of the lungs, special institutions are necessary. So far India has done nothing in this direction, and we commend the above resolution to the attention of the peoples of India. No more worthy memorial could be erected to the memory of the great King whose loss we all deplore, and whose interest in the modern sanatorium treatment of tuberculosis is so well known

THE COMPOSITION OF INDIAN RICES

A VALUABLE *Agricultural Ledger* (1908-9, No. 5), has just been published on the rice plant (*ORYZA SATIVA*), by Mr. David Hooper, F.C.S. The recent work in connection with berri-berri and rice is not mentioned in the pamphlet (which is an economic rather than a medical contribution), but it is this aspect which will attract the attention of medical men

It is a pity that Mr. Hooper did not notice the recent work on berri-berri and rice as he would have more emphasised the distinction (vital apparently as regards berri-berri) between the milled and polished rice and the roughly cleaned rice used in Bengal

He describes the processes which produces the clean white polished deoorticated (berri-berri producing) rice as follows—

"The rice is separated by various milling processes into different products which are used as food stuffs for animals. In the first place, the hulls are removed by passing the grain through milling stones, screens and winnowing machines. The kernels are then deoorticated, and the outer cuticle and much of the gluten layer of the grain together with the germ, constituting the rice bran or meal are removed. The final process consists in polishing the grains. For this purpose, the latter are placed in rotating cylinders of wood and wire gauze, the surface of which is covered with soft tanned hide. In the polishing process a film of gluten

and starch cells is removed, and the fine flour thus obtained is called rice polish. The polished grains are then screened into various grades or sizes.

From experiments made by C. A. Browne of the Louisiana Experimental Station, in 1904, the food value of the separated products were determined. It was found that while raw rice afforded 9.88 per cent of proteins, the brans or rice meals gave from 9.26 to 13.41 per cent of proteins and from 9 to 14.3 per cent of fat. The rice polish contained from 8.5 to 11 per cent of proteins and from 5.2 to 6.9 per cent of fat. While the polished rice, ready for sale, contained only 6.56 per cent of proteins. This illustrates in a conclusive manner the amount of nutritive elements removed in the preparation of rice for the market especially in the polishing process. In the tables of analyses which follow it will be seen how favourably the composition of rices simply freed from their husks compare with those where the cuticle has been removed by mechanical processes.

The effect of cooking is to remove a certain quantity of nourishing matter in the water which is strained away, and the following table indicates this loss —

	Original rice	Boiled	Loss
Water	12.74	3.13	
Albumenoids	6.92	6.32	60
Fat	25	12	13
Carbohydrates	79.13	72.86	6.27
Fibre	34	38	
Ash	62	51	11

The Bengal methods of preparing rice are described as follows —

"*Balam* rice consists of paddy which is husked after hot water has been sprinkled on it. The water inflates the grain and facilitates the removal of the husk when dry. *Atapa* is prepared by soaking paddy in cold water for 24 hours, and then the grains are dried in the sun (hence the name *atapa* or sun prepared). When the grains are sufficiently dry they are husked in a pestle and mortar. During the process many of the grains are broken. *Atapa* with entire grains sells at a higher price than *siddha* made from the same paddy. *Siddha* rice is prepared by first soaking paddy in water then boiling it, when dry it is husked. Rice from over-boiled paddy is coarse in appearance, rice from over-soaked paddy is dark coloured, and from over-dried paddy much broken. The proportion of rice obtained from paddy is about two thirds by weight or one half by cubical measurement."

The method here described as *siddha* is that in force for preparing rice from paddy in most parts in Bengal. It is husked in what is known as the *dhenki*, or in small quantities for domestic use in a hollowed wooden block with a pestle.

The results of the analyses of one hundred and fifty-nine samples of Indian rice are here tabulated for easy reference —

	Samples	Water	Protein	Fat	Carbohydrates	Fibre	Ash
Bengal	14	11.1	7.51	40	79.82	44	73
Bengal	12	12.37	7.09	40	78.86	49	80
Eastern Bengal and Assam	16	11.1	7.67	53	79.21	55	82

	Samples	Water	Protein	Fat	Carbohydrates	Fibre	Ash
Burma	10	11.54	7.54	98	78.59	58	77
Cuttack	11	10.92	6.58	31	80.81	35	1.03
Central Provinces	7	9.05	6.68	85	82.05	42	92
United Provinces	10	10.03	7.44	2.83	77.14	1.00	1.56
Nepal	13	11.28	7.50	85	79.13	32	92
Punjab	14	12.89	6.98	36	78.13	49	75
Bombay	16	12.61	7.69	2.65	74.63	99	1.53
Bombay	14	13.15	7.27	2.56	74.90	74	1.38
Madras	11	8.91	7.10	74	81.54	43	1.25
Madras	11	11.69	6.81	1.03	79.03	49	98

	Water	Protein's	Fat	Amyloid	Fibre	Ash
Carolina	13.10 15.20	7.10 8.52	30 45	75.60 78.52	19 28	40 60
Japan	12.30 15.30	5.50 6.98	25 50	77.64 80.49	21 36	28 46
Java	12.20 14.50	6.67 6.86	35 55	77.30 79.56	24 34	48 58
Piedmont	13.0 16.0	7.21 7.70	35 45	75.77 78.21	20 23	40 44
Sigon	10.2 15.0	6.98 8.38	30 70	76.96 81.35	20 42	23 56

We have appended to Mr. Hooper's table of Indian rices, the analyses made by Mr. Ballard in 1895, of certain rices from other countries. It will be seen that a somewhat higher percentage of proteins is found in the Eastern Bengal rice, but the high percentage of fat in that from the United Provinces is remarkable, the samples came from the Faizabad, Benares and Rai Bareilly Districts. We quote the following also from Mr. D. Hooper's useful paper —

"It is thus seen that the average percentage of protein in these rices is 7.5 with the highest in East Bengal and Assam and Bombay and the lowest in Cuttack and the Central Provinces. But the most interesting conclusions are drawn from the individual analyses where the percentage varies from 9.81 in a sample from Brach to 5.44 in a sample from Cuttack. One object in conducting these examination has been to discover what natural circumstances have contributed to the superiority of the composition of the grain. It has been seen that in some cases the local reputation and market value of the rice coincides with the high nitrogen content. This is noticed in the *halojera* and *bark tutsi* rices of East Bengal and Assam, the *lupakinta* and rice for *mudi* of Cuttack, the *samudrafin*, *sangra*, *basmati* and *gouria* from Nepal, and the *kimod* and *bengali* of Bombay. In other cases there is no connection between the high market value and the nitrogen contents as instanced in the *dudkhan* rice of Bengal. The examination has resulted in giving a prominent place to certain rices which deserve attention at the hands of cultivators. Among these may be mentioned the *chhata* *balam* of Nergiza, the *chhilar* *atub* of Rajahit, the *ghuruki* and *dudhya* *motal* of Khulna and the *lali* *bagri* of Bhagalpur, all of Bengal, the *sonamukhi* of Chittagong and the *baradhan* of Tezpur, the *lali* *bagri* of Rai Bareilly, the *chand* of Suket, Punjab, the *dhimdhan* of Brach, *ambemohar* of Belgaum and the *jeera* *salai* of South Kanara, all of which contain over 8 per cent of albuminoids.

"The richness of the grain appears to be due not so much to the races of the plant or the appearance of the

grain as to the cultivation. The grain of finest composition are found in plants grown in rice virgin soil or in lands liberally manured. Instances of this kind are found in the red rice grown in *taungya* by the Chins of Burma, in the Kanapur rice of the Kaimiao, and in the Kasaragod rice of South Kanna on the Western coast. Attention to the cultivation of the rice plants in the way of manuring the land appears to be one of the principal means of improving the quality of the grain for commercial and edible purposes."

THE SPIROCHÆTA PALLIDA IN DIAGNOSIS

In a useful article (*J. A. M. A.*, March 19th, 1910), Dr. R. P. Campbell, of the Montreal General Hospital, discusses the diagnostic significance of the *Spirochæta pallida* in cases of syphilis. At the present day there are but few types of syphilitic lesion which have failed to show these micro-organisms. In a total of 197 cases examined, the spirochæte was found in 27 out of 33 cases of primary chancre in 13 out of 13 secondary papules and moisty condylomata, in fact in 103 cases of secondary lesions out of 112 cases, it was not found in 6 tertiary lesions examined, but was found in 7 out of 8 congenital lesions.

Dr. Campbell concludes

In the primary and many secondary lesions of syphilis the presence of the *Spirochæta pallida* can be so easily detected that, in view of the definite relationship of *Spirochæta pallida* to syphilis and of the importance of accurate diagnosis, this method of diagnosis should receive more general application.

It should be possible to find the *Spirochæta pallida* in approximately 100 per cent of chancres, excluding those which are nearly healed or have been actively treated, and some cases of mixed infection. In view of this fact, treatment should not be begun before diagnosis is confirmed by finding the spirochæte.

Mucous patches, tonsillar patches, condylomata and moist papules give approximately 100 per cent of positive findings. Positive findings, therefore, have a distinct diagnostic value, though this is not so important as in the case of the primary lesion.

Dry skin lesions, gland puncture and the examination of stained sections of tissue, give results often of diagnostic value, but negative findings are of little weight.

A STREPTOTHRIX IN INDIAN DAHI

We quote the following extract from Dr. G. C. Chatterjee's paper on a new lactic acid producing streptothrix in the well-known curdled milk preparation called in India *dahi*—

"Since Metchnikoff in his book 'On the Prolongation of Life' and other similar publications brought to the notice of the scientific world the beneficial action of lactic acid bacilli, when taken internally, fermented milk, prepared with one or other varieties of the bacilli has come into extensive use, and the study of fermented

Metchnikoff, who has for some time been studying the flora of the human intestine, when on a visit to Bulgaria found that a much larger percentage of people there reached old age than those of other countries, and the only peculiarity he noticed in their diet was that they are accustomed to take curdled milk prepared with a special ferment with their daily meal. By bacteriological examination of the curdled milk which goes by the name of *yoghurt*, it was found that the fermentation is brought about mainly by a bacillus, since named *Bacillus bulgaricus*, and experiments made with a pure culture justified the theory put forward by Metchnikoff that the beneficial action of fermented milk is due to the healthy action which the bacilli produce on the intestinal flora. These bacilli which do not produce gas and are not proteolytic replace the ordinary gas producing and proteolytic bacilli present in human intestine used in ordinary diet. The intestinal contents of ordinary guinea pigs contain a large number of gas producing bacilli. After guinea pigs had been fed on *yoghurt* for 21 days the gas producing bacilli had entirely disappeared, and the animals rapidly gained in weight.

In India curdled milk, called *dahi*, is extensively used as an article of diet. Chatterjee, on studying the bacteriology of *dahi* found that the curdling is brought about by a streptothrix, which has the following characteristics. The protoplasm is granular, the ends are square, and the organism measures 2 in breadth and 8 in length. They are gram positive and are immotile. There is no growth on ordinary culture media unless glucose or lactose is added. Milk seems to be their favourite medium, and this is rapidly coagulated.

A few experiments were made to determine the action of the streptothrix on pathogenic organisms in culture tubes. The following are the results: cholera spirilla are destroyed in less than 24 hours, typhoid bacilli in less than three days, diphtheria bacilli in less than 24 hours, and *B. coli*, *shiga*, *gärtneri* and the paratyphoids are destroyed within two days."—(*Bulletin Manipal Med. Soc.*)

THE CAUSES OF ELEPHANTIASIS

It is well-known that though Manson's theory holds the field, yet all observers are by no means convinced that filariasis is the sole cause even of tropical elephantiasis, and we quote the following excellent summary of the arguments against the filarial theory from a paper by Dr. A. F. Cole of Ningpo, China, in the *China Medical Journal*.

"If filariasis were the sole cause of elephantiasis, directly or indirectly, it is remarkable that dogs and other animals escape so completely, filaria muftis being so common and the dog being by no means immune from injuries from blows, which have been called in to account for lymphatic obstruction due to ova prematurely discharged by the parent worm.

"To put it more concisely the following reasons seem to be against *filaria bancrofti* being the sole cause of elephantiasis as met in this part of China, and more especially if mosquito borne.

(1) Elephantiasis is extremely common, especially in the local country, whilst filariasis is apparently rare. At a meeting of 16 American and English doctors at Mohkashan, when this paper was read, only one had demonstrated *filaria nocturna*, out of 80 cases examined at night by Dr. Bonty in Hanchow hospital, without selection, three of whom were cases of elephantoid fever, not one was found to contain micro-filaria. Out of 120 men examined without selection in Ningpo hospital, only one contained filaria at night; he came from Southern Tschow.

(2) The sex generally affected is the male out of all proportion, if the only method of infection with filarial embryo (supposing this to be the cause of elephantiasis) were through *Culex fatigans* and certain

other mosquitoes, as has been proved to take place, one would expect an equal sex incidence of elephantiasis.

(3) The part usually affected is the leg, if the bites of mosquitoes, etc., were the means of infection, the arms and other exposed parts would be just as likely to be affected by elephantiasis, and that in both sexes.

(4) The class affected is the country labourer in the rice fields. It is extremely difficult to differentiate the mankind in any village where the disease is endemic, for every male seems to be a practical farmer by instinct and most have been in the fields at some period of their lives, but it would seem to be a well founded impression that those who are engaged in literary or commercial pursuits are exempt to a greater degree. If the disease were solely mosquito borne, dwellers in cities and country should show a more equal proportion of elephantiasis cases, for *Culex fatigans* and *Stegomyia fasciata* are common in city and country and are no respecters of persons.

(5) If *filaria immitis* and probably others affecting dogs and animals generally can be considered analogous to *filaria bancrofti* in man, one might expect occasionally to see like elephantoid effects in the limbs of the more aged animals thus affected.

(6) In the vast majority of cases of filarial infection there is no disease produced, the host is "tolerant" of the parasite (Lankester), if this be a fact how can we account for the large number of cases of elephantiasis and the small number of individuals of all ages, in whose blood *filaria* have been demonstrated? Possibly it is because we have failed to take advantage of the opportunities for research which have been given to us. And we lay ourselves open to blame if we individually contribute no facts from our experiences which will help subsequent observers in investigations.

THE PHILIPPINE JOURNAL OF SCIENCE

THE December number of this Journal only came to hand in May. It contains many good papers, first one by Drs A F Coca and P K Gilman on a specific treatment of carcinoma.

It is concluded that "the protoplasmic substances of malignant epithelial tumours in human beings can be injected subcutaneously in large quantities without injurious results, and in three carcinoma cases such injections have been followed by the softening and disappearance of tumour masses measuring in diameter 2 to 4 centimetres." In two other "surgically inoperable" cases in which visible amounts of cancer tissue were left unexcised, they have remained (from 5 weeks to 6 months) free from recurrence. A carcinoma in one individual can be successfully treated with injections of material from a carcinoma of the same kind taken from another individual.

Dr Moses T Clegg publishes a report on the cultivation of the leprosy bacillus which he has summarised as follows—

(1) The leprosy bacillus was first cultivated from leprosy material in symbiosis with other unidentified bacteria and amoebæ, and later in other cases in symbiosis with amoebæ and the cholera vibrio.

(2) By heating a symbiotic culture of amoebæ, cholera and leprosy for half an hour at 60° C, and incubating the leprosy bacillus was obtained in pure culture.

(3) The leprosy bacillus isolated in this manner grows readily in the ordinary laboratory culture media.

(4) The bacillus is pathogenic for guinea-pigs, subcutaneous inoculation having caused lesions which macroscopically and microscopically resemble the leprosy lesions of human subjects.

Captain E R Whitmore, M D, U S Army, has an interesting note on tuberculosis in the Philippine Islands and as Indian experience would lead us to expect, it is always present and very common there. At 100 autopsies in the medical school tuberculous lesions were found in 35. Surgical tuberculosis is not so uncommon, 4.6 per cent of 4,014 surgical cases were tuberculosis of bone, joint or gland.

It is also common in the large Bilibid Prison, over 3,000 accommodation. In this jail well over 100 patients are admitted yearly, and there has been over 150 such patients at the same time in the jail hospital in the years 1906—1908. Many drugs were tried but without special effect.

THE attention of medical officers going on furlough and study leave is directed to the post-graduate classes in the University of Dublin Trinity College, Dublin, the first medical school in Ireland to start systematic lectures and demonstration for qualified practitioners, has issued its annual syllabus of post-graduate classes. As for the past two years, there will be a summer and an autumn course. The former will begin on June 6th and the latter on September 19th, 1910. The duration of each course will be three weeks. Instruction will be given in medicine, surgery, gynaecology, diseases of the eye, ear, throat, nose, and skin, and also in anatomy, physiology, urology, and radiology. The classes are essentially practical and are specially adapted to the requirements of the general practitioner. One advantage of having two sessions each year is that the classes are more limited in numbers so that each member has an opportunity of personally examining every case which is demonstrated. During the operative surgery course a considerable number of operations is performed on the cadaver by each member of the class. The inaugural lecture will for this year be given by Mr B G A Moynihan. The social side of the class has not been forgotten. Members, whether graduates of the University of Dublin or not, can obtain, if they so desire, completely furnished rooms in College, and can dine on commons. Particulars of fees and a prospectus may be obtained on application to the honorary secretary, Dr A R Parsons, 27, Lower Fitzwilliam-street, Dublin.

THE most interesting note in the April *Transactions of the Society of Tropical Medicine* is a short note by Lieutenant-Colonel Oswald Baker, I M S, on the duration of latency in

malarial fever Lieutenant-Colonel Baker left Burma in July 1896, and though he had fever in his Burma career, he had none in England till he was attacked at Bulawayo when on a visit there in September 1909. He considers this attack to have been malaria, though two slides examined showed no parasites yet they showed 19 per cent of large mononuclear leucocytes. Lieutenant-Colonel Baker since his retirement has been in Egypt and the Canary Islands, but believes that there are no malarial mosquitoes in either place. Could he not have been bitten on boardship? He had been 9 days in S. Africa when attacked with fever.

HILGERMANN of Coblenz claims to have got rid of typhoid bacilli in persistent carriers by the administration of fifteen grains of sodium salicylate, three or four times daily for a week or so, giving five such courses in one year.

THERE will be an International Hygiene Exhibition held at Dresden from May to October 1911. There will be five sections, scientific, historical, popular, sporting and industrial.

THE popular section will include the special exhibition, "Infectious Diseases and their Prevention" which was a prominent feature of the German City Exhibition of 1903.

DR POLNARU of Roumania believes that many failures and poisonings following the injection of stovain into the spinal canal are due to undue alkalinity of the spinal fluid, and he has therefore tried with success in 275 cases slightly acid solutions of stovain. He found that a very small quantity of lactic acid, " $\frac{1}{8}$ drop" (sic) to two grammes of fluid was sufficient. His solution is freshly prepared by mixing 0.5 stovain, two drops of adrenalin and one-eighth drop of concentrated lactic acid to two grammes of cerebro-spinal fluid—(*Amer J of Surgery*, April 1910).

Reviews

Medical Jurisprudence for India—By J. B. LYON, CIL, Indian Medical Service, retired, and L. A. WADDELL, CB, CIE, LL.D., Lt-Colonel, IMS, retired. Fourth Edition, 1909. Calcutta: Thacker, Spink & Co., pp. xvi and 686. Price Rs 18.

LYON and Waddell's "*Medical Jurisprudence for India*" is probably one of the most successful medical books ever published in India. The first Edition appeared in 1888, a second soon followed in 1889, Colonel L. A. Waddell brought out a much improved edition in 1904,

and again in 1909 a new and revised edition has appeared. There is no doubt that this volume has been a stand-by to several generations of Civil Surgeons and the new edition (which by an oversight is only now reviewed in these columns) will certainly fully maintain the high reputation enjoyed by its predecessors.

It is the most complete exposition of Indian Medical Jurisprudence that exists, and the reader will find it thoroughly reliable and up-to-date.

The third edition having been sold out, a new edition was called for and Colonel Waddell sought the aid of Major Robertson-Milne, IMS, the Superintendent of the Central Asylum at Berhampur, Bengal, for a revision of the chapters on insanity in its medico-legal relations. This chapter will prove of great use to medical men, lawyers and magistrates who are concerned with such cases. Mr. H. N. Morrison, a well-known Calcutta Barrister, has revised the legal matter. One useful addition in the present edition is a list of questions which a medical witness may be asked in Court, which we strongly commend to the attention of all junior medical men.

The book is thoroughly up-to-date, and is well edited, a free use being made of various types. The illustrations are good and several are new. Full use has been made of many medico-legal cases originally reported in these columns, for example, among later extracts will be found a résumé of Lt-Colonel D. G. Crawford's monograph on rupture of the spleen, which must for long remain the standard authority on these cases, so important in India and which we published in 1902 (*I M G*, 1902, p. 212).

We expressed a very favourable opinion on the former edition, and we can thoroughly confirm that opinion with regard to the fourth edition. No matter which of the many good manuals of medical jurisprudence published in England a medical man may have he cannot safely enter the witness-box without this volume. It is a worthy successor of Chevers' great *Medical Jurisprudence for India* and greater praise than this we cannot bestow.

Practical Study of Malaria.—By W. H. DEADERICK, M.D. London: W. B. Saunders & Co., 1909.

THERE have been many books written on and about Malaria, but there was none in the English language which deals with the whole of that complex subject in a comprehensive way till the publication by Messrs W. B. Saunders & Co., of Dr. W. H. Deaderick's *Practical Study of Malaria*. The great monographs hitherto published have been either compilations or dealt with portions of the subject. In the volume before us Dr. Deaderick, who has practised in Arkansas State, a home of the disease, has with very considerable success attempted to treat the whole subject in a practical way, not

only from the point of view of the sanitarian or the laboratory specialist from the point of view of the practising physician. The result is certainly satisfactory.

Dr Deaderick is known to have written considerably on Malaria, and on that "mystic para-malarial syndrome" hæmoglobinuric fever, blackwater fever as we call it—and his chapters on that subject are full of interest, and show an intimate acquaintance with the old and the most recent literature on the subject. The book is well illustrated, and no one will object to the portraits of Laveran and Ronald Ross which adorn the book.

A brief note of the contents of the handsome book of 400 pages will probably be most useful to our readers and show them what to expect if they purchase the book, as many will. The introductory chapter is historical, chapter II gives a complete account of the geographical distribution of blackwater fever, in N and S America, Europe, Asia and Africa, tropical Africa being rightly called the "home" of this disease. As regards India, we are told that the endemic regions of blackwater fever are "between the Ganges and the Himalayas in Bihar Province" (rather a "small map" description of the *terai* districts, which are moreover not all in Bihar), "between the Godavari and Mahanadi Rivers" in Madras, "a region in the Punjab between Meerut and the Indus" (another small map view of the whole breadth of the Southern Punjab), "a region in which Nagpur is the centre," "certain localities in the region of Bombay and in Assam and Upper Burma."

The chapter on Etiology is good and up-to-date—that on the Pathological Anatomy of Malaria is interesting. Chapter V which deals with the clinical aspect of malaria is certainly good, the account of chronic malaria is quite the best we know. He points out a distinction between chronic malaria and malarial cachexia. "Chronic malaria implies a supply of vital resistance equal to the demand malarial cachexia denotes an exhaustion of the supply. Chronic malaria is an antagonistic equilibrium between parasite and host, cachexia a rupture of equilibrium. Chronic malaria is a conflict cachexia a conquest. Chronic malaria is an active form of malaria, cachexia is a sequel. Cachexia being a sequel, usually of chronic malaria, it may be difficult to say where the influence of the latter ends and the former begins. On the other hand, it is frequently difficult or impossible to differentiate between a relapse in chronic malaria and a re-infection, chronic malaria may be due to one infection, but occurring chiefly in regions where repeated infection is possible, it is highly probable that re-infection is an important factor."

The account of prophylactic methods is complete and up-to-date, and is well illustrated by photographs. "*No stagnant water*" must be the first law of tropical sanitation, the chapter

on treatment is excellent and the various varieties of quinine are ably discussed, the author on the whole prefers the tannate and gives nine reasons for his preference: (1) it is completely absorbed from the alimentary tract, (2) it is more slowly absorbed and remains longer in the system, (3) it is largely absorbed in the bowel after contact with bile and pancreatic fluid, (4) it is not absorbed per rectum, (5) it is better tolerated by stomach and nervous system than the sulphate, (6) its clinical results are entirely satisfactory, (7) it is nearly tasteless and so useful for children, (8) it has a good effect on any accompanying diarrhoea or dysentery, and (9) it is much less expensive than any other tasteless preparation of quinine."

The book is the more complete by the possession of a good index and a very full bibliographical list of references amounting to 449 in all.

We can strongly recommend this book as the most practical and complete treatise on malaria in the English language.

A Text book of Medical Jurisprudence—By JOHN GLAISTER, M.D. Edinburgh F & S Livingstone, 1910. Price 14s.

THERE is perhaps no branch of medical science which has more good text-books written on it than medical jurisprudence.

In England there are many good works on the subject, and in India we have Waddell's Edition of Lyons, Barry's excellent two volumes, not to speak of Gibbons' practical book and Hehn's excellent book for the junior man and layman.

Now before us lies what is practically a new volume by Dr Glaister, of Glasgow. Dr Glaister's book on Medical Jurisprudence and Public Health is well known, but we think he was well advised to separate the two subjects, and the result as regards Medical Jurisprudence is that, he has produced one of the best volumes on this subject that we have ever seen, and at a moderate price. We have no doubt that this volume will soon become a very favourite text-book. We have read it with great interest and are of opinion that it can scarcely be beaten.

The chapters which we noted as particularly good are as follows. The first chapter which gives an extremely useful account of Criminal Legal Procedure in the United Kingdom. Chapter II on Medical Evidence, and especially those sections dealing with professional secrecy are very lucid and satisfactory. In no volume have we read a better account of personal identity and its difficulties than is here given. Galton's system as practically applied first by the Indian Police under Sir Edward Henry when in Bengal is fully described. Chapter V on Death in its Medico-Legal Relations is first rate, but we are sorry to see Dr Glaister is either ignorant of or ignores Indian views on the subject of the rapid formation of adipocere in hot climates, a reference to previous volumes of the *Indian*

Medical Gazette would have set him right here

The chapter on Death from Lightning and Electricity are extremely good and up-to-date, those on wounds, blood-stains and the sexual functions are all well written, complete and practical. The chapter on lunacy and lunacy law is lucid and comprehensive.

The second section is devoted to Toxicology and is certainly good.

The volume is very well illustrated, in fact we know of no book on the subject which is so well illustrated.

Altogether it is an eminently satisfactory book which can confidently be recommended to the Civil Surgeon in India, who wants a book of moderate size, which is reliable, accurate and up-to-date.

The Duties of Sanitary Inspectors in India

—By A G NEWELL, M.D., D.P.H. Office of Indian Public Health, Lahore.

WE have read this little pamphlet, costing only twelve annas, with great pleasure. It is an admirable résumé of the subject of prevention of disease—and we congratulate Dr. A G Newell, the well-known Editor of *Indian Public Health*, and now Health Officer of Lahore, on its production. The first part consists in an enumeration of the duties of a Sanitary Inspector and an explanation of each duty. Part II is entitled "Sanitary Facts" and explains what is meant by night-soil, urine, rubbish, cesspools and open drains. Then comes a short description of various diseases as plague, typhoid, small-pox, etc.

Part III gives a short account of the characters of good milk and good meat. The section on infectious diseases, the date of rash if any, incubation period and period of infectivity is excellent, and the various methods of disinfection are well detailed. We are very glad to see Dr. Newell's preaches war against flies as well as against vermin, mosquitoes (we doubt if salt will kill all anophelines), &c.

It is an excellent little pamphlet should be studied by all Sanitary Inspectors and read by all Municipal Commissioners.

Surgical Anatomy—By JOHN A C MACEWAN, B.Sc., M.B., C.M., &c, Senior Assistant to the Regius Professor of Surgery, Glasgow University, &c. Demy 8vo, pages xiv+478. 61 Illustrations (plain & coloured). Price 7s 6d net. Messrs Baillière, Tindall and Cox, 1910.

BOOKS on Surgical Anatomy, of which there are now quite a number, may be roughly divided into two types, those which approach the subject from an anatomical point of view, and those which deal with the surgical aspect of the subject more prominently. This book may be said to belong to the first type, but it can be fairly said that it will appeal as much to the student of Anatomy, who is only just beginning the study of Surgery, as to the surgeon who wishes to refresh his anatomical knowledge.

Though small in compass, and not so ambitious in some respects as the larger works on the subject, yet it presents to the reader a mass of facts dealt with accurately and concisely. The book is not profusely illustrated, but the 61 illustrations are excellent, though mostly diagrammatic.

The After-treatment of Operations—By P L MUMMERY, Baillière, Tindall and Cox

MUMMERY Baillière, Tindall and Cox

THE third Edition of Mr P Lockhart Mummery's well-known hand book "The After-treatment of Operations" published by Messrs Baillière, Tindall and Cox, at 5s net, is in our hands. Articles on the serum and vaccine treatment of sepsis are added and the chapter on shock has been brought up-to-date, whilst additions have been made to the chapters on abdominal and genito-urinary surgery. The after-treatment of surgical wounds presents such difficulties to the surgeon in India that this book will be very useful to house-surgeons, dressers and those in charge of dispensaries. Besides the more ordinary surgical complications, many other interesting subjects are touched upon. There is a chapter upon post-operative rashes, also one upon artificial limbs and an article upon massage. The hints on the treatment of abdominal cases are full and practical, while there is a very useful chapter on post-anæsthetic complications. We would suggest the addition of a short electrical article for the next edition, with a chapter on some points on surgical after-treatment in the tropics. As it is, the book is one which should be in the hands of all those who are responsible for the well being of surgical patients.

Myomata of the Uterus—By HOWARD A KELLY, M.D., and THOMAS S CULLEN, M.D. W B Saunders Company, 1909

THIS is a large volume giving a full account of Myomata of the Uterus. It is a book full of interest to the Gynæcologist as the material is from an exhaustive study of 1674 cases, occurring from 1899 till 1909. Mr Kelly's cases occurred at the John Hopkin's Hospital or at his private hospital. Mr Cullen's cases were from the Church Home and Infirmary and other hospitals. At the end of the volume a clear description of the different operations practised is given. The book is beautifully illustrated by Messrs Horn and Becker.

The death-rate between 1809 and 1906 was between 5% and 6%, while the death-rate from 1906 to Jan 1909 was less than 1%.

The illustrations number 388 and give a perfect idea of the different appearances presented. The symptoms associated with Myomata are fully gone into—in regard the menstruation the following paragraph occurs—

"If it is possible to exclude the presence of uterine polypi which frequently cause hæmorrhage, of diffuse adenomyomata, which are associated with profuse menstruation but little or

no intermenstrual bleeding and adeno-carcinoma, which occasionally accompanies uterine myomata, one can say with almost absolute certainty that the uterine hæmorrhage which occurs in association with the myomatous uterus is due to a tumour of the submucous variety."

In the post-operative treatment catharsis is not recommended and enemata are chiefly relied on.

The references in the book seem rather complicated. The book is exhaustive and should be in the possession of everyone specially interested in the subject. It is scarcely a book for the average general practitioner or the student.

SPECIAL ARTICLE

DESPOTIC HYGIENE AT PANAMA

THE Canal Zone is the name given to the sphere of influence of the United States Government in the region of the great canal which is

resembled the cases found in Panama. We quote the following extracts from Dr Darling's paper as the analogies of the Panama and Indian varieties of this disease are very interesting—

"The fever of Europe is different from that of Asia and America in the duration of the febrile prooxysm, it being longer in the European type than the others and by animal reactions and other specific characters, such as agglutination and immunity."

"The fever of Asia or Bombay differs from that of America chiefly in the animal reactions of the spirochæte and the clinical features of the disease, the Asiatic fever being more fatal."

"Furthermore, as has been determined in this investigation, there is an individuality to the strains of spirochætes of the same species in the same locality, for an animal immunized to one strain is not immune to another strain from a different human source."

"Note—I have since learned that Carl Frankel has made a similar observation with regard to the spirochætes of the African fever (21)."

"The following table shows some of the relationship of the spirochætes and the respective diseases caused by them."

	PANAMA	CARLSLE	AFRICA	EUROPE	ASIA
Number and duration of febrile paroxysms in man	3 2 days	3 2 days	5-6 1 day	2-3 3-9 days	2-3 "
Severity of disease	Mild	Mild	Severe	Severe	Severe
Number of spirochætes in blood during paroxysm	Very few, 1 to 30 fields	Very few, 2 to cover slip	2 to 3 per field	1 to field	'
The infection in monkeys	Mild with relapses	Mild with relapses	Severe and fatal with relapses	Severe with relapses *	Very mild †
The infection in white mice	Mild, 2 relapses	'	Severe, several paroxysms	Mild, naturally not susceptible	Mild, infected with difficulty †
The infection in white rats	Mild, 1 paroxysm	Mild, 1 paroxysm	Severe several paroxysms	Mild, naturally not susceptible	Infected with difficulty

* Uhlenhuth and Handel

† Mackie, N. Y. M. J.*

being constructed between Colon and Panama—which will convert the United States into a great Pacific as well as a great Atlantic naval power.

We all have heard of the great work done by the sanitarians on the staff of the Canal works and we have more than once quoted Sir Frederick Treves' expression "despotic hygiene" which so aptly describes the unique power given to Colonel W. C. Goigas, M.D., and his large staff.

The pamphlet before us, the **Proceedings of the Canal Zone Medical Association** for the year 1908, just published, shows the amount and nature of the work done by the medical and sanitary staff in this great engineering undertaking. The first paper is on the **relapsing fever** of Panama by Dr S. T. Darling, chief of the Laboratory, Ancon Hospital. Dr Carlisle (*Four Infectious Dis.*, Vol. III, 1906, p. 233), described some cases in New York City which

"In human blood, in the relapsing fever of Panama, there are comparatively very few spirochætes seen during the paroxysm, one to 40 or 50 fields, or, perhaps, only three or four to a cover slip. In the period between paroxysms it is rarely possible to find a spirochæte in the peripheral blood. In none of the cases studied here has the spirochæte been present in what might be called considerable numbers. This observation is another means of differentiating the fever of Panama from that of Europe. Blood films taken from cases of the relapsing fever of Europe often show considerable numbers of spirochætes. Films from a case of European relapsing fever, which I have studied through the kindness of Dr Samuel J. Goldfarb, often show six spirochætes to one oil immersion field. Such a picture is never seen in blood films from cases of the fever met with here."

"The description of the spirochætes is based on observations made with richly infected blood of white mice and white rats."

Dr Darling sums up his paper as follows—

"The relapsing fever of Panama is distinct from the analogous fever of Africa, Europe and Asia, although belonging to the same general class."

"The micro organism causing the local relapsing fever belongs to the group containing *Sp. Obermeieri*, *Sp. Duttoni* and *Sp. Carteri*.

"This spirochete causes a recurring infection in man, monkeys (*Genus macacus*) and white mice, and single paroxysms in white and wild rats.

"The animal reactions are similar to those obtained by Norris, Pappenheimer, Fleurnoy, Noxy and Knapp with the organism erroneously identified by the latter two as *Spirillum Obermeieri*.

"The blood of animals very recently recovered from an infection and that between paroxysms, where spirochetes are apparently absent from the peripheral blood, is infectious, and by analogy this affords a valuable means of diagnosis of the fever in man during the afebrile period by the inoculation of susceptible animals, mice and rats, with patient's blood.

"There is considerable variation in the morphology of the spirochete in the same strain and sometimes in the same smear.

"Identification of spirochetes cannot be made with certainty on morphological grounds.

"The mechanism of defence is largely that of phagocytosis by hepatic endothelium.

"Infection by one strain of spirochetes is followed by a considerable degree of active immunity for that strain, but such immunity is not potent against another strain from a different source, although the same species and from the same locality but different human host.

"For the production of preventive and curative sera polyvalent sera derived from all the strains will probably be necessary.

"Recovered blood in moderate amounts is of no value in preventing infections in white mice and white rats.

"Relapses may be explained by the multiplication of spirochetes in out of the way places where they do not enter the portal circulation and cannot be phagocytosed by liver endothelium.

"Agglutination of spirochetes occurs at least twenty-four hours before crisis in rats *in vitro* and *in vivo*.

"This spirochete is probably a spiral ribbon and not a spiral cylinder.

Fortunately yellow fever is a disease of only academic interest in India, though there are some who have said that the opening of the Panama Canal to ship traffic will render probable the spread of this formidable disease to the further East and so possibly to India. At any rate, the account given by Colonel W. C. Gorgas, the Chief Sanitary Officer of the Isthmian Canal Commission, is of great interest when it is remembered what splendid work Colonel Gorgas did in ridding Havana of yellow fever in 1901. This paper is difficult to abstract, but we will quote the writer's own words. He contrasts the work done *qua* yellow fever and the extermination of the *stegomyia* mosquitoes in Havana and in the Canal Zone.

The work consisted in destroying the *stegomyia* mosquito, the only proved carrier of the still unknown yellow fever poison. This was done by destroying all breeding places and fumigating with pyrethrum or sulphur all infected houses and all neighbouring houses. We now quote as follows—

"The prompt success with which these measures was met I, at the time, attributed principally to the measures taken to destroy infected mosquitoes, and to the measures to prevent fresh mosquitoes from becoming infected. And this seemed to be the general belief, also, of most of those engaged in the work.

I conceived that necessarily a considerable number of infected mosquitoes must escape from every fumigation, and it was always more or less a mystery to me why, with some infected mosquitoes in all parts of the city, and nonimmune adults and children coming in at the rate of 25,000 a year, we did not continue to have yellow fever. Dr. Chaille and his followers—Gutierrez and others explained the immunity of natives in an infected locality as due to the fact that they have yellow fever in a mild form while infants and children. It seemed that if this were the case we should be having yellow fever at the rate of 6,000 cases yearly in Havana, that these cases would all be infecting mosquitoes, and we had taken no measures whatever toward destroying the mosquitoes that had been infected by these 6,000 yellow fever children. I thought that the results we obtained in Havana were due to the destruction of the infected mosquitoes and to the preventing fresh mosquitoes from becoming infected. If 6,000 children were having the fever every year in Havana, I could see that our methods destroyed none of the mosquitoes that were infected by these children, nor did they prevent fresh mosquitoes from becoming infected by them.

In 1904 I was sent to the Isthmus of Panama to take charge of the sanitary work here. The principal sanitary work at that time was to get rid of yellow fever. We put the same methods in operation which we had used in Havana. But we were on the Isthmus sixteen months before the last case of yellow fever occurred here. Now, what made the difference? Why did we get rid of yellow fever so much more promptly in Havana than in Panama? So far as yellow fever was concerned, it seemed to me that it should have been accomplished certainly as promptly at Panama as it was at Havana. I was very much surprised at our want of prompt results at Panama, and have thought over the matter a great deal, and have satisfied myself that I understand the reason why one was apparently accomplished more quickly than the other—for after all the difference is only apparent, not real. We had been doing sanitary work in Havana for two years and a half before yellow fever disappeared, and while for the first two years this work was not being done on mosquito lines, a most excellent machine was being organized and perfected wherewith to carry through the work when the real cause of yellow fever was discovered.

In February, 1901, in Havana, the machine was all perfected, and everything ready, and all that I had to do was to give the necessary orders. In Panama the machine had to be built up from the bottom, and, for the first year, giving orders was of no more use than whistling.

"But what I wish to emphasize in this paper is the fact that a certain proportion of *stegomyia* mosquitoes in a locality is necessary for the spread of yellow fever; that if the number of *stegomyia* mosquitoes remain above this yellow fever point we will continue to have yellow fever as long as we have nonimmunes present, no matter how much we fumigate or how carefully we isolate the sick, and I advance Panama in 1905 as an illustration of this phase of the proposition. I think it is impossible to fumigate and isolate the sick more extensively or carefully than was done in Panama in 1905. If the *stegomyias* are reduced below the yellow fever point we can introduce yellow fever to any extent and nonimmunes in any number and yellow fever will not spread. In proof of this phase of the proposition I advance Havana in 1901 and Panama in 1905 as illustration.

This, it seems to me, gives a reasonable explanation for the disappearance of yellow fever from Philadelphia, New York, Boston, and Quebec, before we knew of its propagation by mosquitoes. Take a city such as Philadelphia. The *stegomyia* is not found there normally, but one hundred years ago, when Philadelphia was subject to yellow fever, we had numerous wells and cisterns as receptacles for storing water. Ships were constantly coming in from *stegomyia* regions and introducing the mosquito. Nearly every summer, no doubt, they were brought in

and propagated there. When they had bred sufficiently to be above the yellow fever point over any considerable area, and yellow fever was introduced, we had an epidemic. Nowadays they have a piped water supply and there are very few breeding places. The communication with stegomyia regions is almost entirely by steamer, and few mosquitoes are carried by steamers as compared with the old sailing vessels, and now there are no means of propagating mosquitoes, so that when a case is introduced, even if there should happen to be a few stegomyias around, they are not in sufficient numbers to be above the yellow fever point, and the disease does not spread."

There is a good article by Dr J C Pe'ry on **Plague** which we need not summarise for readers in India. The next paper is by Dr W E Deeks, Chief of the Medical Clinic, on **Pneumonia**, being an analysis of 574 cases in an epidemic lasting from the autumn of 1905 to the end of 1907. We quote as follows—

"Most of the cases were among the colored people, native of the West Indian Islands, and the mortality was 37 per cent. It is interesting to note the average mortality of the natives of the different islands—

"Among the Barbadians there were 221 cases, with a mortality of 36 per cent, among the Jamaicans, 71 cases with a mortality of 40 per cent, Martiniquans, 69 cases, 42 per cent, Guadaloupians, 50 cases, 22 per cent, Antiguans, 29 cases, 34 per cent, Colombians, 19 cases, 52 per cent, Grenadians, 18 cases, 33½ per cent, St Lucians, 15 cases, 33½ per cent, Panamanians, 12 cases, 58 per cent, whites, 20 cases, 20 per cent."

"A striking feature is the severe mortality among the native Panamanians and Colombians (58 and 52 per cent), who belong largely to a mixture of races. It was found in general that the mixed races showed poor resisting power in pneumonia."

"Most important, however, were Dr Darling's pathological findings as follows: (1) Among the autopsies of colored patients dead from other than pneumococcus infection 17 per cent had a **purulent sinusitis**, a condition which in the United States would be usually considered as a result of a recent influenza, (2) that among autopsies of patients dead because of pneumococci infection the proportion of such sinusitis involvement was much greater, viz, 61 per cent. That was therefore good evidence of a connection between the purulent sinusitis and the pneumococcus in other organs acting directly as a cause, or both were the results of a common cause."

Dr Darling stated in July, 1906, that the age of the sinus infection is appreciably greater than that of the lung or meningeal lesion, and concluded his observations with the statement that "the portal of entry of the pneumococcus is in most instances an inflamed accessory nasal sinus, the mucous membrane of which is fitted for the reception of the pneumococcus by an antecedent influenza or rhinitis."

As regards malaria as a complication the parasites were only found in 16 bloods out of 574 cases examined, and it is pointed out that *the leucocytosis of pneumonia is antagonistic to the parasites of malaria*. Quinine he found useless, and the percentage of recoveries was greater in the pneumonia cases who did not have quinine, an interesting discussion followed.

Dr J T Darling also read a paper on **Rabies**, which is interesting, but contains nothing new. Dr W V Brem, of the Colon Hospital, has a valuable paper on the incidence of **Tuberculosis in Panama** which shows that in Panama as in India it is one of the most formidable disease

though even so recent a standard work as Osler's *System of Modern Medicine* clings to the old idea of the lesser frequency of tuberculosis in tropical climes. The following extracts are of interest—

"Frequency of Tuberculosis"

"Tuberculosis was present in 213, or 74.2 per cent of the 287 bodies examined. This percentage is greater than the estimate of Harbitz and considerably greater than the estimates of most pathologists for temperate regions. In the following table is given the frequency with regard to nationality, age, color, sex, employment with the Canal Commission, and length of time on the Isthmus of Panama."

Of the bodies of patients who had come from tropical countries 73.6 per cent were tuberculous. The greater frequency of tuberculosis among Jamaicans was probably due to the greater average age of the patients 38.6 years. The average age of the Barbadians was well under 30 years. The frequency of tuberculosis did not appear to be affected by color, sex or employment with the Canal Commission.

Twenty one deaths in 287, that is, 7.3 per cent were due to tuberculosis. Percentages estimated for temperate regions, where more resistant white predominate vary between 10 and 15.

TABLE 1—Frequency of tuberculosis in Panama with relation to nationality, age, color, etc

Nationality (Country)	Autopsies No	Tuberculous	
		No	Per Cent
Tropical Countries—			
Barbados	84	56	66.7
Jamaica	52	44	84.6
Martinique	44	32	72.7
Other West India Islands	48	32	66.7
Colombia	13	11	84.6
Panama	7	7	100
Venezuela	1	1	100
Mexico	1	1	100
Total, tropical countries	250	181	73.6
Spain	16	13	81.3
United States	1	1	100
France	2	2	100
Italy	1	1	100
Finland	1	1	100
Sweden	1	0	0
Unclassified	15	11	73.3
Total	287	213	74.2

SUMMARY

"1 Tuberculous lesions were found in 74.2 per cent of 287 consecutive autopsies."

2 A great majority of lesions were small focal ones and appeared to be healed or arrested.

3 Only 21, or 7.3 per cent of the 287 deaths were due to tuberculosis.

4 Pleural adhesions were present in 65+ per cent.

5 Of the pleural adhesions 54.5 per cent was probably the minimum due to tuberculosis.

6 Adhesions occurred much more frequently when tuberculous lesions were on both sides of the thorax than when on one side only, and much more frequently also when the lungs (or the pleura) were involved than when the involvement was limited to the peribronchial lymph nodes."

A very practical paper on the **Elimination of Malarial Fever** is given by Dr H R Carter from which we must quote freely. He points out that preventive measures against yellow

fever are more easy and more successful than against malaria

"The elimination of malarial fever from a community is a much more difficult problem than the eradication of yellow fever, as a consideration of the following well known facts will show

(1) It is much harder to get rid of anopheles than of stegomyia, the breeding places of the latter being practically confined to artificial containers, and in the neighbourhood of human habitation, are much more easily destroyed than those of anopheles, which breed in marshes, and in any pool or stream in the grass or bush. Their breeding places, then, cover a much larger area, frequently the whole country, are far harder to find and harder to destroy when found than the breeding places of stegomyia, also the insect travels much farther from its breeding place than the stegomyia does, probably from three to four times as far

The insect host, then, is much harder to control

(2) It is also harder to control the human host (a) A man sick with yellow fever is infective to mosquitoes only a few days, three or four, one with malarial fever may be infective, if not indefinitely, at least for a long time

(b) Also the prevalence of the plasmodium in the cutaneous circulation of the natives of malarial countries (this is also true of foreigners who have lived in such countries for some time) without symptoms of malaria, renders attempts to suppress malaria by isolation of the human host impracticable, and I think not even to be considered, and, in spite of the opinion of so eminent a man as Koch, I doubt if any sanitarian would be willing to attack the problem in the American tropics exclusively from the end of the human host

The effort then must be made mainly from the insect end of the chain, and we aim primarily to get rid of the anopheles by the destruction of their breeding places, but we will need also every adjuvant that we can use in our fight with this disease, and after all we will very likely, for any reasonable expenditure of time and money, be content with such a control of malaria that it does not cause sickness or mortality beyond what is allowable from an economic or humanitarian standpoint. This is possibly now the case on the Isthmus, and if we can reduce the malarial rate to say 50 per cent of its present amount, and this ought to be possible, we will be satisfied. No one would be satisfied with such a partial success with yellow fever."

He then enumerated the various well-known methods against the mosquitoes, and we quote his views on the value of **quinine as a prophylactic** —

When, in spite of the above mentioned measures, anopheles still have access to men, we attempt to immunize, or at least lower, the susceptibility of, the men exposed

This is by the use of moderate doses, grains three to grains six per day of quinine. The effects of this method of preventing malaria have recently been attacked and the writer wished that the limits of this paper allowed him to discuss the matter. He freely admits that we have been unable on the Isthmus to make such comparative observations, such as taking alternate men, living under the same conditions, one set receiving the prophylactic regularly and for some time, and the other not, as would, after a reasonable number of trials, amount to a demonstration, yet the rapid fall, the invariably rapid fall of the percentage of malaria in the camps where the prophylactic quinine is given regularly, has occurred so many times that the evidence from the Isthmus must be regarded as strongly in its favour. So many factors come in, however, on the Isthmus, that it would require a very large number of observations such as we have not made here to be conclusive. I know of no physician, however, on the

Isthmus who has tried it for any length of time on a large scale who does not regard it as a valuable adjuvant in preventing malaria and rendering it milder and more amenable to treatment when it occurs. There are few people, very few I think, who cannot take even the small doses required, quite a number who object to it and do not take it. Most people, however, can take it indefinitely without any perceptible effect on their general condition

Mr J Le Prince, a Sanitary Inspector, joined in the discussion and made a very practical speech. Talking of the new breeding grounds of the mosquito caused by the **Progressive Excavations**, he said —

"Of course under those conditions we have to use the temporary open ditches and no permanent work is possible. There we have to rely on larvicides and to apply oil or poisons such as *phintol* oil or *crude carbolic acid* in places where there is no danger from such poison. We have to figure on the moving water carrying those substances away, and it may happen that the larvicides are washed away completely before they are effective in destroying the larvæ. There are places where the use of *phintol* oil is much more valuable than the crude petroleum. Crude oil is good, but is not an altogether satisfactory larvicide. If the surface to which the oil is applied is large we have trouble with wind blowing the oil to one side of the body of water. Then, again, if there is much vegetation the oil has to be put in very carefully and intelligent labor is necessary for the application of the oil. Breeding places where anopheles larvæ will collect may and do occur at times, and in large bodies of water where vegetation is present it is possible that such places will be overlooked by the inspectors in charge. In the application of *phintol* oil the entire water is permeated — poisoned — and we get at the mosquito larvæ very rapidly. A solution of a strength between one to three thousand and one to five thousand will kill the larvæ very rapidly which makes *phintol* oil very valuable to use as a larvicide in the wet season as it is effective before it is washed away by the rain or carried down stream. The application of crude oil is more satisfactory when we have less frequent rains, say from December to May, than it is during the rainy season.

The effect of petroleum is often as follows. The oil acts on the algae in the water and forms a sort of scum, which will finally form a very thin film and sink down to the bottom of the pool, or float at times in patches on the water's surface before sinking. When this film, consisting of oil and algae, breaks up and goes down to the bottom it is hard to tell whether or not there are any larvæ under it. Close inspection for a distance of twenty feet along the shore of a pool or ditch may show nothing there, but by very careful examination a little farther on we may come across places where there are large quantities of larvæ present. In other words, in treated bodies of water where the larvæ appear absent it is quite common to find small areas where they are very numerous, and it is very possible to pass over such real breeding places, which may be near the settlements. It is necessary to examine such wet areas carefully in the vicinity of settlements in order to be certain that anopheles larvæ are absent. The same conditions may hold true, of course, even before the application of oil. Mosquito larvæ may often occur only in certain parts of a large body of water although the larger part of such a body of water may appear to be favourable to the propagation of mosquito life.

I remember that some time ago the malarial rate was high in the white quarters at Gorgona near the Hospital. I went over the swampy area near by twice but could not find anything there. I went a third time to this place where the water was from a few inches to two feet deep. The water appeared to be free from anopheles larvæ, but I found some larvæ to be present. The

larvæ remained on the bottom for a relatively long period but finally they would come up to the surface. In other words the anopheles larvæ remained down much longer than we think they would.

"When frightened they remain hidden from sight. Near our settlements, we destroy the anopheles breeding places as much as we can. There have been times at some stations where although we knew absolutely that we had killed out all larvæ in the vicinity they would reappear within one or two days. Subsequent careful inspection seems to show that the second crop had been washed down stream by heavy showers from more remote breeding grounds.

"Fish are a help in destroying anopheles larvæ, but the species of fish here on the Lahnus do not manage to do the work sufficiently thorough for our purpose. Whether the fish have sufficient other food or not, or whether we do not have the species of fish that prefer the larvæ to other food stuffs, is not yet known. Most probably the local species of fish are unable to capture sufficient larvæ of anopheles to make a noticeable decrease in the numbers of the latter. In the north they rely upon fish much more largely than we can do here. I understand that in the State of New Jersey their ditches are dug in the fall or the spring. In their antimalarial work these ditches are cleaned out and vegetation removed two or three times during the season. This amount of cleaning is sufficient. Here our experience has been that it is necessary to inspect streams and pools once a week and not to have inspections further apart than once every ten days. It has very often been necessary to clean out a stream as often as once a week. The algae grow very rapidly here and give a large amount of protection to the anopheles larvæ."

In large bodies of water anopheles are apt to cent in the mass of scum and drifting particles of vegetation that collect to the leeward. As a rule I do not find malaria conveying anopheles in bodies of water unless there is some vegetable matter in a water, either algae, grass, or dead vegetation. Leaves and deadwood are quite sufficient. That seems to give them sufficient protection."

Dr Carter summed up the discussion on his paper and we quote the following —

"There are only two things that I would say. They have brought up the matter of **length of flight**. That is given by Celli and by Nuttall as less than half a mile. It is given by Craig as being as much as a mile. Neither of these statements means a great deal if you do not know upon what data they are founded. The Italian found cases of malaria arising in towns and houses with no breeding places closer than 20 many metres. Craig makes the same kind of statements, i.e., that he found malaria with no breeding places closer than a mile. That means, of course, with no breeding places that they knew of within those distances, and one has to be a very careful observer and we have to know whether he took particular pains to find the places—stripped the ground to find them—before we accept them absolutely, and I do not lay a great deal of stress upon either of those statements that they will fly or will not fly half a mile. Goldberger at Tampico found anopheles aboard vessels lying in the river about a quarter of a mile from the shore. We can be very positive that they came this quarter of a mile. Perry reports one anopheles found aboard a vessel at Esmeraldas, lying a full mile from shore the wind being off shore. It is very certain that this anophele must have flown a mile and must have flown it at a single flight. I can only say I do not know how far to count the maximum average flight from shore across water whether it is habitually a quarter of a mile or more. But I have no idea that a large proportion can fly so far, nor have I any idea that they usually make their maximum travel on land in one flight.

About the class of fish that feed on anopheles, I have no doubt that Mr Le Prince is right and that I am laying too much stress upon fish. But they certainly do a

great deal of good. The inspector at Porto Bello said that his department intended trying the introduction of fish, and I suggested that it would probably be better to bring some of the "**Millions from Barbados**" I suppose you know there are no anopheles in Barbado, and their absence is ascribed to the innumerable multitudes of little fish that infest all the streams and pools in that country. Whether that is the cause of the absence of anopheles or not I do not know."

Dr M E Connor read a paper on general sanitation which brought out the following remarks from Colonel W C Gorgas, the Head of the Commission—speaking of **general sanitation** and special sanitation directed against mosquitoes —

"The other special disease we deal with is malaria and it seems to me the general filth theory of disease has very little bearing. Dr Connor spoke of the general health of the community as resulting from these measures. How much this improvement is due to the general measures it is difficult to say.

In writing the preface to last month's report I embraced a period of three years—1907, 1908 and 1909. The death rate among employees from disease in 1905 was 32.72, in 1906, 42.44, in 1907, 23.64, and this year was as low as 7.70. Our rates are higher here on account of the very large number of accidents we have. We can see the diseases that are rife. For instance in October 1906, malaria played a very prominent part. Malaria is a disease that increases the morbidity, but it has not such an effect upon the mortality, the greater number of the deaths that year were caused by pneumonia. I am unable to say what has caused the practical disappearance of pneumonia.

The important thing in this connection is, I think, the increase in wages that has taken place everywhere among the people. In this country men were paid 10 cents an hour silver and only a few were employed. We came and increased more than double the wages—on the average trebled the wages. That had an enormous effect on the community in improving their local food supply and their hygiene. Certainly the improvement of the food ought to have had some effect upon it.

So far as my experience relates here and in Cuba, which covers all, so far as municipal and tropical work is concerned, I would be inclined to consider the individual disease that I was dealing with and direct my sanitary measures toward that point."

Dr Carter had a short note on the varieties of **anopheles in Panama**. We quote the conclusion —

"As I said before, the two varieties we have found capable of transmitting malaria are *A. albimanus* and *A. pseudopunctipennis*. These are the two commonest varieties of anopheles in the Zone. They are found practically everywhere and they breed in most collections of water on the ground. I have not succeeded yet in demonstrating zygotes in the midgut of the third variety or *A. malefactor*. It will be important to determine whether this mosquito transmits malaria or not, for, at times, this mosquito is found in large numbers in the breeding places and in barracks. Of the other varieties of mosquitoes, some of them breed in tree holes, in the recesses of parasitic plants, and in the bamboo, but so far as the transmission of malaria is concerned these varieties would probably be a negligible quantity."

There are also two good papers on **Filariasis**. We quote the following for and against Manson's view of **Elephantiasis**, &c., as a filarial disease (see also above p 265) —

"First—The correspondence of the geographical distribution of *filaria nocturna* and of elephantiasis

Second—Filarial varicosities and elephantiasis occur in the same districts and frequently in the same individual

Third—Lymph scrotum and unquestionably filarial disease often terminates in elephantiasis of the scrotum

Fourth—Elephantiasis of the leg sometimes supervened on the surgical removal of a lymph scrotum

Fifth—Elephantiasis and lymphatic varix are essentially diseases of the lymphatics

Sixth—Filarial lymphatic varix and true elephantiasis are both accompanied by the same type of recurring lymphangitis

Seventh—As filarial lymphatic varix is practically proved to be caused by the filaria the inference that true elephantiasis, the disease with which the former is so often associated and has so many affinities is attributable to the same cause appears to be warrentable

Of late there has been considerable doubt raised as to whether elephantiasis is primarily caused by the filaria, those opposing the view claiming—

1 That elephantiasis occurs in countries where there is no filaria, many cases have been described in Northern climates of localized elephantoid conditions or of elephantiasis of one or both feet in which there was no suspicion of filariasis

2 That filaria is very rarely found in the blood of a case of elephantiasis. In none of the cases seen here was any filaria found, and in general statistics from filarial countries, especially from British West Indian Islands, where the general infection has varied from 7 to 16 per cent of the population, the percentages in cases of filariasis have varied from nothing to 6 per cent

3 That the majority of cases of elephantiasis arise from successive attacks of lymphangitis. One observer—Sabourand—found streptococci in each attack, but in the intervals cultures were sterile. Another observer—Piout—believes that there is a specific micro organism which causes these attacks, and that eventually the organism will be isolated

That filaria are the primary cause of lymph scrotum and similar conditions where the embryos are obtained in large numbers from the lymph sections of those areas is admitted by the great majority of observers. Again, there have been cases of lymph scrotum which have been observed to pass on to true elephantiasis of the scrotum

Manson's view as to the disappearance of the filaria in cases of elephantiasis, I have already mentioned. He cites a most interesting case where there was a heavy filarial infection, 300 or 400 filaria being found in every drop of blood. The patient passed through a severe attack of lymphangitis and adenitis. After this attack only three filaria were found in a drop of blood. A few months later he had another attack of lymphangitis, and after this attack no filaria were found in his blood

The above extracts show the vast amount of work done by the large Medical and Sanitary Staff which the United States Government have wisely brought together to render possible the accomplishment of the canal which has baffled more than one generation of men. 'Despotic hygiene' and plenty of money will and can do much

Medical Societies.

THE MEDICAL SECTION OF THE ASIATIC SOCIETY OF BENGAL

The monthly meeting of the Medical Section was held on 11th May, with Lieutenant-Colonel

A H Nott in the Chair. Captain J W D Megaw, I M S., showed cases of (1) Locomotory ataxia in a European, which developed while under mercurial treatment (2) Syphilitic paraplegia in a patient, who had recently suffered from a slight attack of hemiplegia, presumable of vascular origin (3) Crossed hemiplegia due to a lesion of the pons

Captain Denham White thus showed (1) A specimen of intestinal obstruction in a child due to Meckel's diverticulum having become twisted on itself, distended and almost gangrenous (2) An X-ray plate of a liver abscess, opened before admission to hospital, showing a rubber tube within it, which was removed with a lithotrite (3) An X-ray plate showing an osteophyte on the under surface of the os calcis following an injury to the heel (4) An X-ray plate of a tumour of the lower jaw

Lt-Colonel Nott read a paper on Central Placenta Prævia, which we publish above

At the meeting held on June 8th, the main subject dealt with was that of a proposed

MEMORIAL TO KING EDWARD VII

The following is an account of the meeting—

A meeting of the Society was held on June 9th, with Lt-Colonel Drury, I M S., in the Chair. A letter was read, which had been referred to the Medical Section by the ordinary General Meeting of the Asiatic Society, in which the suggestion was put forward that either the foundation of a Tropical School of Medicine in Calcutta, with extensive fully-equipped laboratories for research on tropical diseases, or a Sanatorium for tuberculosis would constitute at the most appropriate memorial to the late King-Emperor Edward VII

Lt-Colonel Drury in opening the discussion on this subject said, that he thought the proposed Tropical School of Medicine might be taken up by the Government, but that a Sanatorium for consumption would be especially suitable as a memorial to the late King. Lt-Colonel Pilgrim agreed that the provision of Sanatoria, for several would be required in different parts of India, was an urgent need, and especially appropriate as a memorial to the late King, who took such a great interest in such an institution at Midhurst. At the same time he thought a School of Tropical Medicine would also be a suitable memorial, and should be brought forward as there should be a very good prospect of obtaining sufficient funds for both. These suggestions would appeal to all classes and all religions

Lt-Colonel Nott thought that if a memorial was required in Calcutta, then the Tropical School of Medicine would be the more appropriate scheme

Dr Ghosh agreed with the Chairman that a Sanatorium for tubercle in which the poorer classes could be efficiently treated was the more suitable suggestion

Major Hayward thought that Calcutta was an ideal place for establishing a Tropical School of Medicine with a sufficient number of scientific workers to utilise the vast opportunities for research. This was the most urgent need and would lead to great amelioration of suffering.

Major L Rogers pointed out that last year this section had drawn attention to the urgent need for a Sanatorium in India for phthisis cases, and agreed that this was both the most urgent medical need and the most appropriate as a memorial to the late King. At the same time a Tropical School of Medicine in Calcutta was well worthy of support and should also be put forward at the present opportunity.

As every speaker had been in favour of one or both of the proposals, the following resolution covering the whole ground was proposed by Lt-Colonel Pilgrim and adopted by the meeting—

"The Medical Section of the Asiatic Society of Bengal, having considered the letter on the subject referred to it by the ordinary general meeting of the Society, is of the opinion that in view of the great interest in Sanatoria for consumptives displayed by the Late King-Emperor Edward the Seventh, and of the urgency of the provision of such Sanatoria in suitable centres in India, as pointed out by this section last year, such Sanatoria, of an Imperial character and appealing to all irrespective of race and religion, would be most suitable objects of expenditure of a portion of the funds raised in India to commemorate His Late Majesty. They are further of the opinion that if sufficient funds are available, a grant towards the recently proposed Institution for Research in Tropical Diseases and Post-graduate Instruction, would also be most appropriate."

Correspondence

THE I S M D AND BRITISH QUALIFICATIONS

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I was very glad to see that Assistant Surgeon Rosari has taken up the subject of British qualifications for the I S M D, and I trust that on perusal of this my second letter to you, he and others of my service will further ventilate their views, and correct me if any of my suggestions appear detrimental to the interests of the service.

The service is laboring under so many disadvantages which directly and indirectly impair its efficiency, that I feel I shall be doing it a good turn, if by enumerating a few of them in your valuable paper, the authorities may be eventually be moved to adopt the necessary measures for their removal.

But first let me hasten to agree with Assistant-Surgeon Rosari that we would make much more useful and efficient Assistants to the R A M C and I M S Specialists, if it were made easier for us to obtain British qualifications and clinical experience in the manner suggested in my first letter.

I have long maintained that the standard of education required for admission to the Medical Colleges of India should be raised to the level of the requirements of the British General Medical Council.

This suggestion may, at first sight appear to involve a hardship to the Domiciled Community who in the future, may be anxious to enter the service, but would be debarr'd from doing so owing to their inability to educate themselves

to the required standard. To such I would say that the service wants the best material available, and that the present low standard of education is a tacit encouragement to the majority of us to be satisfied with the mediocre when we should really aspire to something higher. The higher the standard of education is raised, the greater will be the incentive for the best material to qualify up to its requirements. The disappointment of those who fail, cannot be greater than that of the mature medical man with a love for his profession, who anxious to rise as high as he can in a profession which has become part of his being, finds the Portals of Science closed to him owing to a fault which is not entirely of his own creation. I would again ask the authorities to prevent their men from experiencing such disappointment and humiliation in the future, by—

I. Raising the standard of education for entrance to the Medical Colleges of India to the level of the requirements of the British General Medical Council.

II. Obtaining the consent of the British General Medical Council to the holding of their Matriculation examination in India for the benefit of those Assistant Surgeons already in the service, who are now desirous of obtaining British qualifications, but whose previous educational qualifications are apparently not up to the requirements of the Council.

Myself and others would willingly undergo such an examination if it were held in India.

To go to England to pass an examination in general education is a needless waste of time and money to a man whose primary object in taking furlough to England is to pass, as speedily as possible, an examination qualifying him as a medical man.

In view of the proposed Medical Registration Act for India, under which the 'Indian Medical Profession' as distinct from the I M S and R A M C, do not wish to acknowledge our status as qualified practitioners in India, it behoves both ourselves and the Government to remove an obvious reproach from the service as soon as possible.

At a meeting of the Medical Profession in Bombay, Sir Bhalchandra Krishna distinctly refers to us and the Hospital Assistant class as "these non qualified men." Though I do not agree with the opinion expressed by Sir Bhalchandra Krishna, it has nevertheless been a grievous shock to me to find that even in India I am liable to be termed a quack.

I am however thankful to this gentleman for having unconsciously provided the "incentive" to us "to improve our educational standard." It remains for the authorities to provide the means.

I recently applied to the British General Medical Council for permission to sit for the Final Examination of the Conjoint Board, and, notwithstanding that my educational qualifications included all the subjects required by the Council, and in addition three oriental languages as well, I was informed by the Registrar that I could not be registered as a student of medicine in the United Kingdom, unless I first passed an examination in general education, equal to their matriculation standard.

I am very thankful to the Registrar for the invariable courtesy and sympathy shown me in all the letters received from him, but I nevertheless cannot help thinking that the special committee could have safely stretched a point in my favour by interpreting their own rules in a more liberal than literal sense. In conclusion, Sir, I would beg to be permitted to ask a perhaps not irrelevant question. Is the Military Assistant Surgeon, whose mother tongue is English, and who is likely to live, and practise his profession among an English speaking community, likely to make a less desirable or useful "British qualified man" than the Entrance passed Bengali or Maharatta of doubtful British sympathies, to whom the English language, ideas, and code of social intercourse must necessarily always be foreign? The answer is obvious, and yet England is kinder in this and other matters to "the stranger within her gates" than to her own kith and kin.

With apologies for writing at such length,

Yours, etc.,

JAMES R FOY,

Military Asst Surgeon
Resident Medical Officer, Lawrence
Memorial School, Ghara Gali

CAMPBOR POISONING

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—The following appears worthy of record—

The patients were brothers, two boys, aged 14 and 8 respectively.

History.—Both these boys took about two tablespoonfuls of camphor liniment mistaking the bottle which contained it for a bottle of castor oil. This happened at about 6.30 A.M. Both of them vomited once immediately after swallowing the medicine and were feeling none the worse for the accident for about half an hour, when they became giddy and dropped

down in a fit of convulsions which lasted for about a few seconds. They were brought to the hospital soon after and exhibited the following symptoms—

1 They were drowsy, but easily roused and then replied to all questions put

2 Pupils were not dilated, but normal

3 Face very slightly flushed

4 Breathing not hurried, but normal

5 Body was warm

6 No vomiting or purging, or pain in the mouth or belly

7 Pulse good, no convulsions after admission

Treatment—Patients put to bed. Emetics administered in the shape of mustard dissolved in warm water. The vomited matter smelt strongly of camphor. In about two hours time after admission the drowsiness all disappeared and the boys regained their normal condition.

Yours, etc.,
M K PILLAI, B.A., M.B., C.M.,
Assistant Surgeon

MANDALAY,
13th May 1910

A CASE OF MYIASIS

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I send the following brief notes of a case of Myiasis, which may be of interest to readers of the *I M G*.

A—, a well built, Hindu male, *æt.* 30, cultivator and village chowkidar, was admitted to hospital on the morning of the 3rd April 1910 complaining of severe frontal headache, creeping sensations about the nose and forehead, a bloody and foul discharge from both nostrils, and the expulsion of a worm from the right nostril when violently blowing his nose, a few days previous. All these symptoms were of about three or four days' duration. There was no history of venereal disease. There was no fever, no swelling and his respiratory and other symptoms were normal. His appearance was very anxious, and he was in great agony from the pain in his forehead. There was a fine smelling and sminous discharge from both nostrils. On douching his nose with a solution of turpentine frequently during the day five typical "screw" worms came through the nostrils. The pain continued. Morphine was given to relieve this and inhalations of eucalyptus during the intervals of douching.

On the next day, 4th April, the douching was continued and seventh more worms came away. The pain, discharge and creeping sensations still continued.

On the 5th April in continuing the douching eleven more worms came away—and the patient states he swallowed a couple. He was now quite free from pain and the creeping sensations and discharge from his nostrils had stopped. He was discharged perfectly fit the next day. In all 23 worms were expelled.

Yours, &c.,
R KEELAN
Military Assistant Surgeon

PUSA,
6th April 1910

FORMALDEHYDE AND FLIES

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I tried a weak solution of formaldehyde in water (2%) last year in the Gayer Pilgrim Hospital. The method employed was to half fill enamelled iron bowls with the solution and to put them alongside the patients' beds and in the middle of the wards. There is no doubt about its efficacy, a good many flies were found dead in the bowls and a still larger number die away from them after drinking, in fact I was very surprised to see the number dead in the sweepings of a small ward after the first 24 hours' trial. The net result was a marked total diminution in the number of flies but as the Gayer Hospital stands in the middle of a thickly populated bazaar, there was a constant influx of flies from there and they could by no means be totally exterminated. The flies of course prefer to settle upon any excretion which may happen to have fallen on the sides of the bowl, or fragments of food or any of the odds and ends which patients will not part with. To try and make the formalin solution more attractive, I added a little milk to it but this had practically no effect. Pure formalin, *æ* (40% formaldehyde in water) costs roughly Rs 1120 a lb and as several quarts of the weak solution are required every other day, the total monthly expenditure cannot be lightly disregarded. My impression also is that a flesh solution is more efficacious, but did not make any exact observations on this point. At any rate, one can safely say it is a more cleanly and efficacious way of dealing with the pest than the use of sticky fly papers.

Yours faithfully,
E OWEN THURSTON, F.R.C.S.,
CAPT., I.M.S.,
Civil Surgeon

MONCHYR,
May 21st, 1910

THERAPEUTIC NOTES

MESSRS BURROUGHS, WELLCOME Co send us specimens of their new Labloid LODAL, with the following description of its action and use—

'Lodal' is prepared by the oxidation of laudanosoine (an alkaloid occurring in opium) in a manner analogous to the preparation of cotinine from narcotine.

The physiological action of 'LODAL' resembles that of cotinine, in producing tonic contraction in the pregnant and non pregnant uterus. It differs, however, in that 'LODAL' exercises more effect on the heart, slowing and strengthening the beat, and producing a rise in blood pressure in which vasoconstriction is a definite factor. It has much the same effect on the higher centres, but its action in this respect is more powerful than that of cotinine. Clinically it has been used with good effect in cases of uterine hæmorrhage.

Dose—One, swallowed with a little water, three times a day.

"ECTHOL"

(Bottle)

In all forms of blood dyscrasia—as indicated by skin disorders, bad healing power and general debility—Ecthol (Bottle) is said to prove effective when other treatment fails. It quickly raises the antitoxic and so called opsonic power of the blood, increases the resisting power of the tissues and thus minimizes the dangers of bacterial attack. Healing processes are stimulated, and the whole economy is materially improved in its vital details. Ecthol has also been used with benefit in typhoid, eruptive fevers, small pox, scarlet fever, erysipelas, etc., carbuncles, boils, gangrenous wounds, ulcers, abscesses, stings of insects, bites of snakes etc., and is valuable as a local application in all pustular formations and fresh cuts.

BROMIDIA

Of all the many hypnotics at the command of the medical profession there is none that gives as uniform satisfaction under all conditions as Bromidia (Bottle). The sleep produced is said to be of a true physiological character. It is dreamless, and the patient awakes refreshed and vigorous. In proper dosage, Bromidia is perfectly safe and does not depress the heart. A teaspoonful should be given in water and, if necessary, repeated hourly until four doses have been administered. It is needless to state that, in order that maximum effect may be obtained from the initial dose, the patient should be placed under conditions favourable to the induction of sleep.

VIROL

WE have received the following note—

"All London has been talking of the wonderful collection of Babies of all Nations brought together by Virol Limited at the Ideal Home Exhibition in April.

Dry after dry vast crowds have filed past the beautifully designed Eastern Nursery in which this collection of charming little ones was gathered. Her Royal Highness Princess Christian opened the Exhibition, which was afterwards attended by the Princess of Wales and other Members of the Royal Family.

In the tastefully decorated Court and under the verandahs of an Eastern Nursery were seen playing together Virol babies from all quarters of the world, Chinese and Japanese babies played with African and Indian babies of all races German, Russian, Norwegian and Dutch babies with Cingalese, Moorish, and Turkish babies. There were English, Scotch, Irish and Welsh babies, and babies from Zanzibar, Cuba, Demerara, Nigeria, Egypt, Roumania, Poland, &c., &c.

The whole scene was charming on account of its freedom and naturalness, the Babies played their games and danced regardless of the crowds of visitors. These little ones were a striking advertisement for Virol, for to this excellent food they owed their health and vigour, and they represented the various countries in which Virol is used."

Service Notes

THE HON COLONEL BATE—"May 11th witnessed the departure on leave, preparatory to retirement, of Colonel T E L Bate, C.I.E., I.M.S. Inspector General of Civil Hospitals, Punjab, who thus brings to a close a long and honourable career of nearly 35 years' service in the Punjab. Entering the service on March 31, 1875, Surgeon Bate, as he was then called, spent the first five years of his Indian career in military employment, during which period he took part in the Afghan war, serving in the Jellalabad Frontier Force under the command of Major General Bright, O.B. In 1880, he

entered the civil department, and during the next six years he acted successively as Civil Surgeon of Peshawar, Murree, Multan, and Delhi. On four occasions during this period he was on special duty in medical charge of the camp of His Honour the Lieutenant Governor in the days when the cold weather foun of the head of the province was a much more ceremonial affair than it now is.

"It was at Multan that Surgeon Bate's attention first became directed to the ravages of disease amongst the prison population, but it was not until 1886, while Civil Surgeon of Delhi, that he first began to direct that serious attention to jail administration which was destined to lead to such far reaching results, and which was subsequently to establish his reputation as one of the leading penologists in India. Only those who knew the jails in the earlier eighties can realise the state of things then existing and the vast improvement that has since taken place. Suffice it here to say that the opportunity that then presented itself was not neglected, and Surgeon Bate found ample scope for his energies in elucidating the many problems that confronted him and in devising the means for their solution. He soon recognised that malaria, concerning which little was then known, was responsible in great part for the excessive jail mortality, and applying the result of recent research he commenced in 1887 what is believed to have been the first attempt to carry out systematic quinine prophylaxis in India. In the same year he was promoted to Surgeon Major, and in 1889 he officiated as Inspector General of Prisons, Punjab, to which post he was permanently appointed two years later. Then followed fourteen years of strenuous work, during which, in spite of many initial difficulties, he laboured unceasingly to promote the physical well being of the prisoners and the efficiency of the department for which he was responsible. Success attended his efforts, and it is notorious that, before his term of office came to a close in 1903 not only was the jail administration of this province generally acknowledged to be the best in India, but the prisoners exhibited a degree of healthiness, and in particular an immunity from malaria, in marked contrast to that of the civil population.

"In 1902, Lieutenant Colonel Bate had been gazetted a Companion of the Indian Empire in recognition of these services, further reward came in 1905 when on the retirement of Colonel McCaughey, he was selected for the appointment of Inspector General of Civil Hospitals and promoted to the rank of Colonel. Of Colonel Bate's many activities during the past five years there is no need to speak in detail. Guided by a high conception of duty, he endeavoured, undeterred by a private sorrow, to foster the growth of medical science in the Punjab, and to promote the efficiency of the charitable institutions on whose succour in time of need the vast population of this province are so greatly dependent.

"A man of great independence and decision of character and a strenuous worker himself, he spared neither himself nor others, indeed it is no secret that in his earlier days he was wont to exhibit the *fortiter in re* rather more than the *suaviter in modo*. Those qualities combined with great conscientiousness, sobriety of judgment and sound commonsense rendered him an administrator of no mean order, and the estimation in which he was held by the local Government was fittingly expressed by His Honour the Lieutenant Governor at the meeting of the Legislative Council on May 6th, when he bore eloquent testimony to the value placed upon Colonel Bate's services by a long line of Lieutenant Governors. His invariable courtesy, scrupulous justice and great accessibility gained him the confidence of his own department, who acknowledged and respected his firm but wisely directed control. Amongst the many tributes that have been paid to him on the eve of his departure none are more striking than the garden parties organised in his honour by the Assistant Surgeons of the Punjab and by the native officials of the Jail Department. These and other farewells including a dinner at which he was to have been entertained by the officers of his own service, had to be abandoned at the last moment in consequence of the King Emperor's death."—(C. & M. Gazette)

We had written a note on Colonel Bate's retirement when we received the above with which we entirely agree, and as this gives a more complete history of Colonel Bate's good services we gladly reproduce it here.

COLONEL G. W. P. DENNYS, I.M.S., is promoted Colonel and posted as P. M. O. Aden Brigade. Colonel Dennys has been for years a well known Punjab Civil Surgeon and more recently he has been A. M. O. of the N. W. Frontier Province. On relief by Colonel Dennys, Colonel Quayle, I.M.S., comes to the Abbottabad Brigade, a pleasant change.

LIEUTENANT COLONEL R. JAMES, M.B., I.M.S., retired with effect from 29th April 1910. He entered the service in March 1879 and was put on the selected list in June 1907. He has been on leave out of India since September 1909.

LIEUTENANT COLONEL E. P. FRENCHMAN, I.M.S., who retired recently, was well known as Inspector General of Prisons in Burma, he entered the service in March 1879, and was put on the selected list in April 1907.

THE following ruling of the Government of India [No. 1252, dated 16th March 1910 from Deputy Secretary, Government of India, Finance Department] is worth noting and is therefore here reproduced. It refers to pay of I.M.S. officers attending the Kasauli classes—

"I am directed to acknowledge the receipt of your letter No. 7639 G.A., dated the 29th November 1909 asking to be favoured with rulings on the following two points in connection with the orders recently issued by the Government of India in the Home Department relating to the emoluments to be given to officers of the Indian Medical Service who volunteer for a short course of training in clinical bacteriology and technique at the Central Research Institute at Kasauli—

(a) Whether Indian Medical Service officers who proceed to Kasauli for the training referred to are entitled to any local allowances of which they may have been in receipt immediately before proceeding for the short training, and

(b) What remuneration, if any, should be given to the *locum tenentes* of such Indian Medical Service officers, i.e., whether such *locum tenentes* are entitled to acting or local allowances or to both. If it is decided that no local allowances are admissible in such cases, whether or not recoveries should be made from the Civil Assistant Surgeon Chanda, who was given both acting and local allowances for a month during the absence for that period at Kasauli of Captain Anderson, I.M.S., the Civil Surgeon Chanda.

"2 In reply, I am to remark as follows—

(1) The intention of the Government of India in regard to the first point was that the local allowances drawn by officers immediately before they proceeded for the training referred to were to be continued to them for the period of their stay at Kasauli without prejudice to the claims of officers acting for them who, under Article 32 (b) of the Civil Service Regulations are ordinarily entitled to the local allowances attaching to the appointments in which they are acting.

(2) As regards the second point raised, I am to say that the question as to the remuneration admissible to officers acting in place of officers deputed to Kasauli was not previously discussed, but the Government of India, after a careful consideration of the matter are now pleased to rule that such acting officers shall receive the allowances which would ordinarily be admissible to them if the officers for whom they act were absentees within the meaning of Article 6 Civil Service Regulations. The case of the Civil Assistant Surgeon, Chanda, should be decided accordingly."

THE subject for the next Parkes Memorial Prize of 75 guineas and a bronze medal is the following—

"The causation and prevention of enteric fever in Military Service with special reference to one of the following branches of the subject—

(a) The roll played by flies in the dissemination of the disease

(b) The importance of 'Carriers'

(c) The predisposing influence of age and length of service"

(NOTE—The essay must include the results of personal observation and research.)

Essays to be sent in to the Secretary of the Prizes Committee, Royal Army Medical College, Millbank, London on or before the 31st day of December 1912. Each Essay to have a motto, and to be accompanied with a sealed envelope bearing the same motto, and containing the name of the competitor. The successful essay becomes the property of the Prizes Committee.

This prize is open to all Medical Officers of Royal Navy, Army and Indian Services of executive rank on full pay. It is a pity that the subject chosen is one which chiefly affects one only of the above services.

LIEUTENANT COLONEL C. J. BAMBER, I.M.S., Sanitary Commissioner Punjab, is appointed to officiate as Inspector General of Civil Hospitals, Punjab, during the absence, on leave of the Hon'ble Colonel T. E. L. Bate, C.I.E., I.M.S., or until further orders.

MAJOR E. WILKINSON, F.R.C.S., I.M.S., Officiating Sanitary Commissioner Eastern Bengal and Assam is appointed to officiate as Sanitary Commissioner, Punjab, during the deputation of Lieutenant Colonel C. J. Bamber, I.M.S., as Inspector General of Civil Hospitals Punjab, or until further orders.

MAJOR C E WILLIAMS, M D, I M S, Sanitary Commissioner, Burma, is granted privilege leave for three months, with furlough for one year in continuation, with effect from the 19th May 1910

MAJOR S A HARRIS, M B, I M S, Deputy Sanitary Commissioner, United Provinces, is appointed to officiate as Sanitary Commissioner, Burma, during the absence of Major C E Williams, M D, I M S, on leave, or until further orders

THE services of Captain W J Fraser, M B, F R C S F, I M S, are placed temporarily at the disposal of the Hon'ble the Chief Commissioner of the Central Provinces

THE Home Department Notification No 428 Medical dated the 19th April 1910, is hereby cancelled

CAPTAIN E C TAYLOR, Indian Medical Service, is appointed to officiate as an Agency Surgeon of the 2nd class, and is posted as Civil Surgeon of Miranshr, with effect from the 17th April 1910

THE services of Captain J B Christian, I M S, are placed permanently at the disposal of the Government of Eastern Bengal and Assam

MAJOR C H BOWLE FRANKS, I M S, Capt T H Gloster I M S, Major F A L Hammond, I M S, and Capt G H Stewart, I M S, have all taken the D. P H Cambridge

CAPTAIN N S SODHI, I M S, has gone to the Punjab on plague duty

CAPTAIN A A ALISON, I S M D, Civil Surgeon, Noakhali, is allowed combined leave for 6 months, viz, privilege leave for 2 months and 8 days and furlough for 3 months and 23 days under paragraph 435 (b) of the Army Regulations, India, and Articles 260, 606 and 233 of the Civil Service Regulations with effect from the 16th May 1910, or any subsequent date on which he may be relieved

SECOND CLASS Military Assistant Surgeon H Mansfield, I S M D, on being relieved of his duties as Assistant Superintendent of Immigration Goulundo, is appointed to officiate as Civil Surgeon, Noakhali

CAPTAIN H C KFATES, I M S, District Plague Medical Officer, Gujranwala, has been granted one year's furlough with effect from the 16th May 1910 or the subsequent date from which he may avail himself of it, under the leave rules of 1886 for the Indian Army

HIS Excellency the Governor of Bombay in Council is pleased to appoint Captain A J V Betts, M B, I M S, to act as Deputy Sanitary Commissioner, Western Registration District, in addition to his own duties from the date of handing over charge by Dr J W Van Millingen, pending the arrival and resumption of his appointment by Major J L Marjoribanks, M D, D P H, I M S

WE note that Major A Hooton, I M S, was present and represented the Indian Medical Service at the meeting in Manila of the Far Eastern Association of Tropical Medicine. He read a paper on Litholapaxy in India

CAPTAIN CLIFFORD A GILL, I M S, acts as Chief Plague Medical Officer, vice Major Browning Smith, I M S, acting as Sanitary Commissioner, E B & A

THE following is published in *Gazette of India*, May 7th, 1910, for information of officers of the Indian Medical Service—

Cases have occurred in which officers on furlough in England are found to be ignorant of the rules regarding Study Leave. Attention is, therefore, invited to those rules and especially to Rule 8 published in Army Department Notification No 25, dated the 7th January 1910. Officers who wish to convert a part of their leave into Study Leave should address the India Office *before* the course of study is undertaken. Officers who had obtained Study Leave before leaving India should report to the India Office immediately on their arrival in England, the date on which they propose to commence study, and at the same time to forward a copy of the programme of study sanctioned

MAJOR P K CHITALE, I M S, was granted 3 months' privilege leave from 20th May, and Assistant Surgeon G R Gorardhon, acted as Civil Surgeon

CAPTAIN D P GOIL, I M S, acts as Civil Surgeon of Rampore Boria, temporary during the absence of Major Leventon, I M S, on deputation

CAPTAIN W J FRASER, M B, F R C S, Ed, is appointed Civil Surgeon of Chanda, C P

CAPTAIN E C HODSON, I M S, acts as Health Officer of Simla, vice Captain H M Mackenzie, I M S, appointed to officiate as Professor of Physiology in the Medical College, Calcutta, vice Captain D McCay, I M S, on furlough

DR W C HOSSACK, a District Health Officer under the Corporation of Calcutta is appointed to be Health Officer of the Port of Calcutta, with effect from the afternoon of 30th April 1910, vice Dr W Forsyth, retired

CAPTAIN M MACKENZIE, I M S, Officiating Civil Surgeon of Patna, is appointed to act as Civil Surgeon of Darbhanga, until further orders, vice Lieutenant Colonel J G Jordan, on leave

DR R H PULIPAKA, Civil Surgeon of Nadia, is appointed to act as Civil Surgeon of Patna, until further orders

LIEUTENANT COLONEL J G JORDAN, I M S, Officiating Civil Surgeon of Darbhanga, is allowed combined leave for six months viz, privilege leave of three months under Article 260 of the Civil Service Regulations, and furlough for the remaining period under Article 303 (b) of the Regulations, with effect from the date on which he may avail himself of it

CAPTAIN A CAMERON, I M S, is employed temporarily on plague duty, Punjab

CAPTAIN L J M DEAR, I M S, is posted as Medical Officer, Mewar Bhil Corps, from 4th April

CAPTAIN L REYNOLDS, I M S, acted as Principal as well as Medical Officer, Lawrence Military Asylum, Sanaw u, with effect from 4th May 1910

MILITARY ASSISTANT SURGEON H J L DUCKWORTH is appointed Civil Surgeon of Pakokku

DRESS—Sam Browne belts for Indian Officers—The use of "Sam Browne" belts by Indian officers in field service order has been approved. These belts are of the service pattern and can be obtained from the Ordnance Department on payment, at an approximate cost of Rs 5 12 each. The exact cost at the time of purchase can, however, be obtained from the Controller of Military Supply Accounts, Calcutta

CAPTAIN W L TRAFFORD, I M S, has joined the United Provinces, Civil Medical Department

MAJOR S BROWNING SMITH, I M S, well known as the head of the Plague Department in the Punjab, has gone to Eastern Bengal to officiate as Sanitary Commissioner, vice Lieutenant Colonel E C Haig, I M S, on leave

MILITARY ASSISTANT SURGEON W W TURNER is posted to Bushire on quarantine duty

THE Civil Medical Department in Madras underwent several changes recently, viz, Lieutenant Colonel F C Reeves, I M S, went to military employ, Lieutenant Colonel W B Browning, C I F, was permitted to retire from 17th May 1910, he having been on leave for 2 years 1 month and 15 days

LIEUTENANT COLONEL C M THOMPSON, acted as Principal of the Medical College, and Lieutenant Colonel S C Sarkies, I M S, was permitted to retire from 6th May

MAJOR E M ILLINGTON, I M S, went on 18 months' leave up to 14th February 1911

MAJOR T E WATSON, I M S, is not due out till 2nd December 1911

MAJOR T H SYMONS, I M S, is due out on 15th August 1910

MAJOR H KIRKPATRICK, I M S, is not due out till 15th December 1910

CAPTAIN W H TUCKER, I M S, is not due out after 17 months' leave till 9th November 1911

CAPTAIN M N CHAUDHURI, I M S, is due from leave on 15th May 1911

CAPTAIN CHALMERS, I M S, is due out after 19 months and 15 days' leave on 20th August 1910

CAPTAIN T W HARLEY, I M S, has 15 months leave up till 10th June 1911

CAPTAIN W A JUSTICE, I M S, is due from 19 months' leave on 30th September next

CAPTAIN J J ROBB, I M S, was due after 16 months' leave on 10th June 1910

CAPTAIN F W CRAGG, I M S, has a year's leave up to 20th February 1911

INDIAN MEDICAL SERVICE—SPECIALISTS—The following officers are appointed specialists in the subjects noted, with effect from the dates stated against their names—

(d) *Ophthalmology*

CAPTAIN G C L KERANS, 8th (Lucknow) Division, 15th March 1910

Prevention of disease

LIEUTENANT A M JUKES, Brigade Laboratory, Shillong, 8th March 1910

FURLOUGH AND LEAVE—OFFICERS—With the approval of the Right Hon'ble the Secretary of State for India the Government of India have decided that, in future, when an officer's services are lent to the Imperial Government, a British colony, or a foreign state or municipality the officer will be subject to the rules as to leave and leave emoluments laid down by his foreign employers, or to such arrangements as may be made on his behalf by the Government of India, or by the Secretary of State in Council. An officer should make himself acquainted with such rules or arrangements in regard to leave before accepting foreign employment

UNDER the provisions of Article 260 of the Civil Service Regulations, privilege leave for one month is granted to Captain W F Brayne, I M S, Special Plague Medical Officer Pegu Division, with effect from the date on which he may avail himself of it

UNDER the provisions of Articles 260, 308 (b) and 233 of the Civil Service Regulations, privilege leave to the extent due, combined with furlough so as to make up a total period of six months, is granted to Lieutenant Colonel R H Crator, I M S, Civil Surgeon Mandalay, on account of ill health, with effect from the date he is relieved by Major A Fenton, I M S

CAPTAIN P K TARAPORF, I M S, is appointed to officiate as Superintendent of the Mandalay Central Jail, in place of Captain A W Greig, I M S, proceeding on leave

CAPTAIN A S LESLIE, M B, I M S, is appointed to be Superintendent of the Insein Central Jail, with effect from the 1st April 1910 in place of Captain H H G Knapp, M D, I M S, transferred

This Department Notification No 58, dated the 16th April 1910, is hereby cancelled

CAPTAIN H W PIERPONT, I M S, F R C S has joined the Central Provinces and has been posted to Chandra as Civil Surgeon

MAJOR P CARR WHITE, Indian Medical Service (Madras), as Agency Surgeon of the 2nd class, is posted on return from furlough, as Agency Surgeon in Kotah and Jhalawar, with effect from the 11th April 1910

MAJOR S HUNT, Indian Medical Service, as Agency Surgeon of the 2nd class is granted privilege leave for three months, combined with furlough for four months and six days, with effect from the 9th April 1910, under Articles 233 and 308 (b) C S R

COLONEL W G KING C I E, M B, I M S, Inspector General of Civil Hospitals, Burma, is granted leave on private affairs for three months under paragraph 226, Army

Regulations India, Volume II, with effect from the 3rd April 1910

The Home Department Notification No 293, dated the 24th March 1910, is hereby cancelled

The services of the undermentioned officers are placed permanently at the disposal of the Government of the United Provinces

Captain C A Sprayson, M D, I M S

Captain W Lapsley, M B, I M S

The services of Captain D C V FitzGerald, I M S, are replaced at the disposal of His Excellency the Commander in Chief in India

ON transfer to Dehra Ghazi Khan, Captain A K Laddie, I M S, District Plague Medical Officer, Karnal relinquished charge of his office on the afternoon of the 19th March 1910 to Captain Kharwar Shamsheer Singh

CAPTAIN C E SOUTHOON, I M S, District Plague Medical Officer Ludhiana, has been granted privilege leave for 1 month and 4 days combined with 8 months and 18 days' study leave and 11 months and 8 days furlough, under Articles 260 233 and 308 (b), Civil Service Regulations with effect from the 12th May 1910 or the subsequent date from which he may avail himself of it

CAPTAIN G S HUSBAND, I M S, is appointed a specialist in prevention of disease with effect from 2nd March 1910

ASSISTANT SURGEON V C MATHEWS, I R C S I has joined the Civil Medical Department of the Central Provinces

CAPTAIN D N ANDERSON, I M S, an Officiating Civil Surgeon, C P was granted one year's furlough on medical certificate on 25th January 1910—(furlough gazetted 11th May 1910)

Notice

SCIENTIFIC Articles and Notes of interest to the Profession in India are solicited. Contributors of Original Articles will receive 25 Reprints gratis, if requested

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to THE EDITOR, *The Indian Medical Gazette* c/o Messrs Thacker, Spink & Co, Calcutta

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BOOKS, REPORTS, &c, RECEIVED—

P J Muximory's Diseases of the Colon John Wright & Sons
Insanity in Every day Practice By E O Younger Baillière, Tindall & Cox
Wheeler's Operative Surgery 2nd Edition Baillière, Tindall & Cox
Castillani & Chalmers Tropical Medicine Price 21s Baillière, Tindall & Cox
Report of Grant Medical College
Kemp's Disease of Intestines W B Saunders & Co
The Bengal Asylum Report
The E B and A Asylum Report
Punjab Chemical Examiner's Report
Punjab Asylums Report
Waddell's 4th Edition of Lyons's Jurisprudence Thacker Spink & Co
A Robertson's Med Jurisprudence & Public Health John Currie & Co
Glaister's Medical Jurisprudence, 2nd Edition E & S Livingstone
Sir R Boyce's Health Progress in W India John Murray

LETTERS, COMMUNICATIONS, FROM—

Lieut. Hugh Acton, I M S, Peshawar Capt Devenport Jones, I M S, Sholapur Major James I M S, Patiala Lt Col Leslie I M S, Simla Lt Col H Smith I M S, Amritsar, Dr Wanless, Bombay Capt J Morison, I M S, Fort William Major Pihot I M S, Madras Lt Col Maynard, I M S, Calcutta Major L Rogers, I M S, Calcutta Capt Mckenzie, Etawah Lt Rosier, Ghora Gali, Dr Castellan, Colombo

Original Articles.

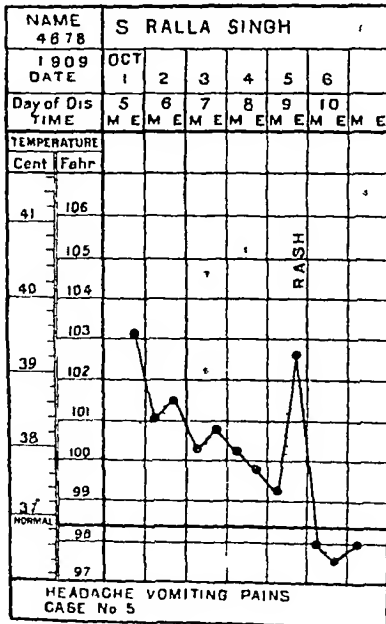
DENGUE OR PHLEBOTOMUS FEVER? NOTES ON AN EPIDEMIC AT NOWSHERA

By C N C WIMBERLEY,

LIEUT COLONEL, I M S

IN the *Indian Medical Gazette* (for July 1908), Lt-Col Fooks, I M S, described an outbreak of "Dengue Fever" amongst the men of the 15th Lancers at Sialkot during the months of October and November, 1907

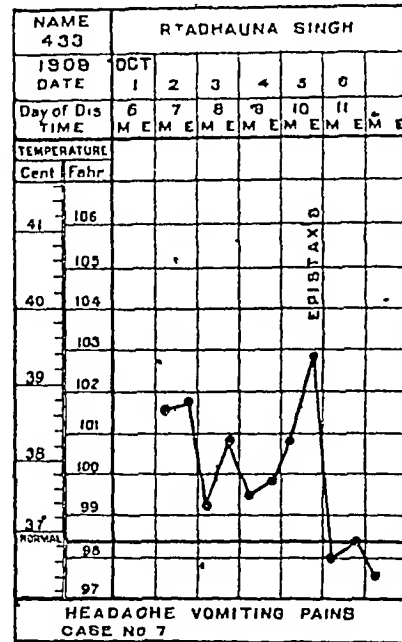
Last autumn I had to deal with a very similar epidemic of fever in the men of the 15th Sikhs, stationed at Nowshera. In this Regiment about 160 cases were met with between the 4th October and the end of November. All the other troops in the Cantonment, British and Native, were also affected, but none so severely as the 15th Sikhs



The epidemic was of such a nature as to form a well-marked clinical entity. From influenza it differed in so far that catarrhal respiratory symptoms were rarely present, nor were the symptoms of the protean character that are associated with influenza, but nearly always of one marked clinical type. Again, convalescence was usually rapid, and the marked asthenia which follows influenza was not apparent. From the clinical description of dengue given by Manson, and copied into all text-books on tropical medicine, it differed in so far that there was no sudden widespread onset—the cases occurring irregularly during a period of some seven weeks. Nor were the pains and aches complained of, though generally severe, of the excruciating character which has given the

pseudonym of "Break-bone Fever" to dengue. Again, the pains did not persist after the termination of the fever, but only lasted for a couple of days or so after the onset.

The disease met with may shortly be described as a sharp attack of pyrexia, lasting usually from three to six days, accompanied by severe headache in the frontal or orbital regions, and by pains in the back and thighs. In some cases these pains were so severe as to cause the patients very great suffering, but in others they were of a milder nature. But some degree of pain was universally complained of. They usually lasted for the first two days of the fever only, great relief being experienced in



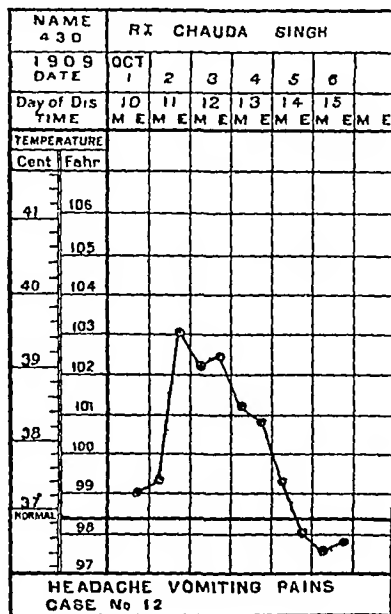
the third day. In a very large proportion of cases vomiting also occurred during the first day or two. The temperature generally rose to 103° or higher, reaching its maximum in the evening of the second day, others commenced to fall gradually by lysis, but in many cases first before reaching normal there was a further sudden rise which persisted for some hours, after which the temperature fell rapidly to subnormal. This terminal fever was generally marked by severe constipation, the final fall being frequently coincident with the free evacuation of the bowels by a purgative. In not a few cases it was associated with epistaxis. Subnormal temperatures during the first few days of convalescence were universal. It was difficult to calculate the exact duration of the pyrexial attack, as some men did not report sick at once and were indefinite as to how long they had been ill before coming to hospital, but so far as I could elicit, the fever lasted—

3 days in 37 cases

4	"	"	43	"
5	"	"	39	"
6	"	"	33	"
7	"	"	6	"
8	"	"	2	"

In about 8 per cent of the cases a rash was observed, appearing first on the forearms about the time of the terminal rise of temperature, and then spreading over the body, sometimes as a mere mottling of the skin, but in several cases as a well marked maculo-papular rash. Then coming to hospital had a very heavy, almost drunken look, with congested faces, supposed conjunctivæ, and white-coated tongues. This appearance with the complaint of frontal headache and lumbago-like pains was very characteristic. Recruits and young soldiers were especially affected, and two officers and one officer's wife were amongst my patients.

The disease was distinctly infectious. Several sick attendants contracted it in hospital. There were as a rule no complications. A few men have slight bronchial catarrh, and one weakly follower developed broncho-pneumonia, coma vigil, and rapidly succumbed.



Convalescence was usually rapid, and few sequelæ were noticed. One man had musculo-spinal paralysis and wrist drop which soon passed off, and another presented slight maniacal symptoms for a few days. But the bulk of the sufferers expressed themselves as quite well a couple of days after their temperature fell.

No true relapses occurred.

As noticed by Colonel Fooks, I found the pulse rate markedly diminished during the latter part of the fever, and during early convalescence. In several cases with a temperature of 102° the pulse was only 65, and with the subnormal temperatures of convalescence the pulse was usually not above 55.

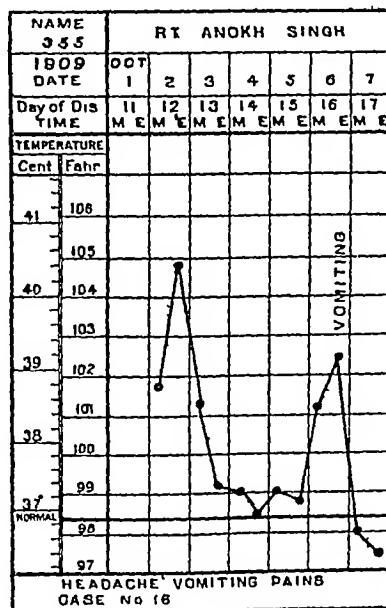
I append a few illustrative charts.

The great point of interest in such epidemics is their etiology.

The "Three-day Fever" of the Mediterranean littoral has been proved by Doerr to be conveyed by the bite of a sandfly (*Phlebotomus*), and Lieutenant-Colonel Butt, R A M C, in Malta has confirmed this.

Now the *Phlebotomus* is a very common insect in the Peshawar Valley, indeed all over the Punjab, causing a good deal of annoyance at any rate. But in most years I think "sandflies" are most abundant in the early months of the hot weather, i.e., in April and May. During the very hot months their numbers diminish, but increase again in the autumn. And it is in the autumn only that these outbreaks of Dengue-like fever occur, so far as my experience goes, I have frequently, at the commencement of the hot weather, met with irregular pyrexial attacks of short duration, somewhat resembling the cases I have described above, but have never at that time of year seen anything of the nature of an epidemic. Whereas in the autumn months I believe epidemics to be not uncommon.

The virus described by Doerr in the "Papafasi Fever," of Herzegovina, is ultra-microscopic, and able to pass through a Berkefeldt filter. It can hardly then be of a protozoal nature.



Not does quinine appear to have the slightest effect on fevers of this nature. When the late epidemic occurred in Nowshera, all the troops were saturated with quinine, which had, for several months, been issued as a prophylactic against malaria.

Such outbreaks as I have described above, appear to me to agree in all essential points with McCarrison's "three-day Fever of Chitral," Dengue Fever as described by Ashburnham and Craig in the Philippines, and "Papafasi Fever" of the Mediterranean.

THE RATIONALE OF QUININE PROPHYLAXIS

By HUGH W. ACTON, I.M.S.,

Offg Medical Officer, 15th "Indiana" Sikhs,
Nowshera, N. W. F. Province

THE medical officer in the tropics is often called upon to express his opinion on the efficacy of quinine as a prophylactic measure, as well as to state definitely the dose and frequency with which this drug should be taken, thereby ensuring the maximum amount of protection with a minimum amount of drugging. The new-comer, when reading through his various text-books regarding this subject, will be perplexed by the diversity of the opinions expressed by the authors, with the result that in the end, he will either adopt those advocated by some well-known authority, or if he does not trouble himself to this extent, will blindly follow the prevailing fashion in his particular district or station. With time and experience this may have to be modified or even re-modified, until a method is adopted, which will in his opinion be the one and only way to administer quinine as a prophylactic measure. The knowledge gained by this process of fallacious experience has now carried us to an epoch in which many medical officers have a law unto themselves, by which they deal with this question. Some give 10 grains of quinine once a week as a prophylactic, others give it twice a week, and some even three times a week, there are a few who employ larger doses (*i.e.*, 15—20 grains), with the above frequency. The 2 and 5 grains *per diem* have also their advocates, who generally give their advice to officers, but do not as a rule employ it with the men, owing to the trouble and impossibility of ensuring a regular daily administration. There are a few even who do not believe in quinine as a prophylactic measure and from their inaccurate administrations give hazy statements or even quote figures in support of their views. Year in and year out from July to October these doses are given with automatic precision, irrespective of whether the epidemic is one of a mild or a severe type and with even less regard as to whether it happens to be one of a benign or malignant infection.

Now surely there must be some underlying cause to explain the chaotic state of our knowledge in this country, regarding this branch of prophylaxis, and the reason of it is not far to seek, being due to the fact, that first and foremost many do not take into account that they are dealing with at least three distinct types of malarial fever, each having its own incubation period which varies to a slight extent with the severity of the epidemic, and each class of parasites having a different power of resistance to the action of quinine.

And secondly, absolutely no help is afforded by our statistics because the dose employed, is

often not recorded, neither are any data given as to the type of malarial fever being dealt with, owing to the fact that systematic microscopical examinations are rarely carried out. Whilst many of the returns are as often as not cooked, either intentionally to show a better result, or inadvertently by detaining cases over 24 hours and then discharging them, so that they are never shown in the admission book. By some individuals this practice has even been carried to further lengths in order to show a smaller malarial morbidity than their predecessors as the result of their own initiative and zeal. The fashionable diagnosis of three-days fever (*papatasi* or sand-fly fever) has also offered a larger scope for errors to occur in the diagnosis of fevers in this district. Until the above points are remedied, any large group of figures will not be worth the paper they are written on. In dealing with this subject, one will therefore have to be introspective and bear in mind two of the things, that Oliver Wendell Holmes learnt in Paris, *i.e.*, "not to take authority when I can have facts and not to guess when I can know." Fortunately nearly all the facts in connection with this branch of prophylaxis have been investigated and confirmed for us by numerous observers, *i.e.*, Laveran, Golgi, Ziemann, Romanowsky, Marchiafava and a host of others, and all that is left for us to do, is to know the type of malarial fever we are dealing with and then to adopt the practical application of our knowledge, instead of blindly following any one method which at present is so often the case. Golgi showed that quinine in an adequate dose acted on the malarial parasites in an inverse ratio to their age being most intense on the free merozoites and young trophozoites causing them disappear from the peripheral blood within a few hours' time, less intense in the case of the mature trophozoites, which were going to form sporonts or schizonts and no action whatsoever on the sporont (crescent) stage of the malignant tertian parasite. In the case of the macio- and microgametocytes of the Benign Tertian parasite, I have observed marked alterations within a few hours' time, following the administration of 10 grs of quinine *t.d.s.*, the first change noticed was a deficiency in the staining reactions of their chromatin and protoplasm, whilst the vacuole round the chromatin mass appeared to be distinctly increased in size, and this change progressed until the parasite was observed as an irregular feebly staining vacuolated mass which was with difficulty recognised as such, whilst these degenerative changes were taking place, the parasites became less numerous and after 24—48 hours had completely disappeared from the peripheral blood. In malignant tertians on the other hand I have observed crescents persisting for three to six weeks in the proportion of 1 to 100 or more leucocytes in spite of 30 grains of quinine *per diem*. Golgi further noted that quinine acted

most potently on the benign tertian parasites, and suggested that this was probably due to the hydæmic condition of the corpuscle which allowed a certain degree of osmosis to occur from the plasma. The benign quartans were less affected than the above, whilst the malignant tertians, especially in their sporont stage, were not affected by even large and repeated doses. From his observations on the malarial parasites, Laveian found that any dose under 5 grammes (roughly 8 grains) had no appreciable effect on them even in the endoglobular stage, whilst small doses such as two grains (advocated by some as a prophylactic measure) rather tended to increase the resisting power of the parasite to quinine, the above is not absolutely accurate, for we must remember that Laveian was chiefly speaking about malignant tertians, and it is an every-day experience to see that a single dose of five grains is sufficient to cause a complete disappearance of the young trophozoites of the benign tertian from the peripheral blood. From the above facts we learn that a dose of 5—10 grains is the least amount that will influence a benign tertian infection, but when the malignant tertian infection gains its predominance (*viz*, in Peshawar during September, October, and early part of November) larger doses of quinine should be given (from 10 to 15 grains) owing to the greater resisting power of the parasite towards this drug.

The next point to be considered is at what intervals should these doses be given so as to ensure an efficient prophylaxis with a minimum amount of dosage. This can only be gauged by studying how long the incubation period of these different infections lasts, and has been arrived at in the following manner—

I—EXPERIMENTAL BITES (FROM MARCHIAFLAVA AND BIGNAMI)

Subject	Experimental bite	Development of fever	Parasites	Incubation	REMARKS
AF	Dec 10th—13th	Dec 29th	B Tertian	16—19 days	
AB	Jan 2nd—5th	Jan 14th	M Tertian	9—12 days	Unwell on 10th

II—EXPERIMENTAL INOCULATIONS

Author	Parasites inoculated	Amt of blood inoculated	Incubation
Calandruccio	Quartan	1 cc	18 days
Gualdi and Antolisei	Ditto	2 cc	15 "
Di Mattei	Ditto	2 cc	11 "
Gualdi and Antolisei	Ditto	3 cc	12 "
Bacelli	Ditto	4 cc	12 "
Di Mattei	Ditto	5 cc	18 "
Bastianelli & Bignami	M Tertian	1 cc	4 "

Author	Parasites inoculated	Amt of blood inoculated	Incubation
Bastianelli & Bignami	M Tertian	2 cc	5 days
Ditto	Ditto	2 cc	2 "
Ditto	Ditto	5 cc	2 "
Bignami	Ditto	Part of a drop	6 "
Ditto	Ditto	Do	10 "
Mannabeig	B Tertian	5 cc (centrifugalized blood)	21 "
Antolisei & Angelini	Ditto	15 cc	11 "
Ditto	Ditto	2 cc	12 "
Ditto	Ditto	2 cc	12 "
Ditto	Ditto	2 cc	9 "
Ditto	Ditto	2 cc	9 "
Bacelli	Ditto	4 cc	6 "

The following averages were obtained by the undermentioned authors from their tables of experimental inoculations, giving the maximum, minimum and mean for the three types of malarial fever.

Author	QUARTAN			BENIGN TERTIAN			MALIGNANT TERTIAN		
	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
Bignami and Bastianelli	15	11	13	12	6	10	5	2	3
Mannabeig	18	11	13.1	21	6	11	14	3	6.5
Marchiaflava and Bignami	15	11	14	21	6	11.3	14	2	6.1

III—CLINICAL EVIDENCE

Although the cases about to be recorded, occurred in a malarious district and at a time when fever was rife, they were selected, as none of them, according to their own knowledge, or by the entries in their Medical History sheets, has suffered from malaria during the last three years. Evidence of Latent Malaria were also sought for, by making blood films and examining for parasites, pigmented leucocytes, basophilia or an increase of the hyaline leucocytes. The urine was also examined by Schlesinger's test for the presence of Urobilin with negative results, thereby confirming Plehn's view regarding the total absence of signs either in the blood or in the urine during the primary incubation period. It must be understood that this evidence, although admitting no proof on account of the above reasons, as well as the impossibility of fixing the exact date of infection, yet appears to be in a degree confirmatory to that afforded by 1 and 2.

(a) Sepoy A. K., 59th Scinde Rifles, F.F., was admitted into hospital suffering from pneumonia, on the 2nd day of his disease. Several crises of Malignant Tertian were at that time in the hospital. For three days, systematic examinations were carried out in order to obtain any evidence of Latent Malaria. Crisis occurred on the 5th day of his disease. On the morning of the 7th day of his admission, he had a typical rigor with a temperature of 103.2°F, a few Malignant Tertian trophozoites were found in his blood the next morning. The fever yielded to quinine grains 10 tds.

(b) B K & N G, two sick attendants on a severe case of pneumonia, had their bloods and urines tested for 5 consecutive days for evidence of Latent Malaria with negative results. At this time there were in the hospital 21 cases of Benign Tertian and 12 of Malignant Tertian. On the 6th day N G had an attack of fever and Malignant Tertian Trophozoites were found. Whilst the patient and B K had their attacks of fever on the 11th and 14th day, Benign Tertian parasites were found in these two cases.

The above cases are quoted, as they typically illustrate the duration of the incubation period during an epidemic, but at the beginning of the fever season, partly owing to individual resistance, and partly owing to the fact that small doses of parasites are injected, the incubation period is often very much more prolonged. Therefore from the above summary of evidences, it may be concluded that Benign Tertian fevers have an incubation period of about 11 days, Benign Quartans that of 14 days, whilst the Malignant fevers usually run to about 6 days. The parasites in the latter type of fever require more working at, as it is probable that there are three distinct parasites, and these may differ slightly in their incubation periods. (See Inoculation Experiments.) Taking these two main facts into consideration, *viz*, the action of quinine on the parasite and the incubation period, it follows that quinine should be administered in the case of Tertian infection at least 48 hours before the fever develops (*i.e.*, at intervals of 8 days when Benign Tertian infection are prevalent and at intervals of 4 days when Malignant infection are prevalent). In the case of Quartan fevers, the intervals should be about 11 days or 78 hours before the fever develops.

Experimental evidence showed that when large doses of parasites were injected, the parallel in nature, when malaria is prevalent and many mosquitoes are infected, these intervals should be shortened down by 2 days at least.

Our Indian regimental hospitals afford a striking example of the conditions necessary for a severe epidemic. For here we have some 20—40 cases of malaria in a small hospital, all of which either have been or are still infectious, and yet are not isolated during the night time by mosquito nets*. And further many of the buildings, with their innumerable rafters and beams form a very suitable place for harbouring anopheles during the heat of the day. A dissection of 20 malarial transmitting anopheles (*eg*, *Myzomyia Culicifacies*) caught in the hospital during the fever season, ought to be quite sufficient to convince the greatest sceptic that all the conditions for a local epidemic are present. As mosquito nets are not supplied to regimental hospitals for Indian troops, in order to isolate these infectious cases, the hospital havildar, sick attendants, and those not suffering

from malaria should be treated as if a severe epidemic of the particular type of fever was prevalent in order to prevent them running unnecessary risks.

Finally, from clinical evidence, one sees how commonly double infection occurs in Tertian fevers, so it would be safer in practice to give two consecutive prophylactic doses of quinine. In this district Quartan infections may be neglected as they rarely form more than 8 per cent of the monthly returns, so leaving them out of consideration, the following rules may be formulated so as to ensure the maximum amount of protection with a minimum amount of personal inconvenience.

(a) When Benign Tertian infections are prevalent (*i.e.*, when they form 70 per cent of the weekly malarial returns) two consecutive doses of 5—10 grains should be given at intervals of 8 days, but if the epidemic is a severe one, the intervals may have to be shortened down to 6 days.

(b) When Malignant Tertian infections are prevalent (*i.e.*, when they form 30 per cent of the cases or over) two consecutive doses of 10—15 grains should be given at intervals of four days, but if the epidemic is a severe one, these intervals may have to be shortened down to two days and the maximum dose given.

In order to efficiently carry out the above rules, it is necessary to know the monthly incidences of the different districts and stations. This data can be obtained by carefully examining the blood of every fever case microscopically for a year, and from these figures a rough idea can be formed. These incidences are liable to variations with the amount of rainfall, etc., and in this district a rise in the incidence, in spite of two 10-gr doses of quinine every eight days, nearly always means that Malignant Tertian are becoming prevalent. The following monthly incidence tables will show how these fevers vary not only in the different districts, but also at a particular time of the year. The first four sets of figures were taken from Major Leonard Rogers' book, "*Fever in the Tropics*".

The table on next page shows the monthly incidence of malarial fever in Peshawar, and indicates that during the greater part of the hot weather, *i.e.*, from June to August, Benign Tertian infections are prevalent, whilst from September to November when the weather begins to cool down, the Malignant Tertians predominate. It further illustrates the greater tendency for relapses to occur with the Benign Infections.

Sir Patrick Manson, in his book "*Tropical Diseases*," mentions that—"There are three principal methods of administering quinine as a prophylactic.

- (1) 5 grains every day after breakfast.
- (2) 10 grains twice a week.
- (3) 15 grains every 10th and 11th day.

* Why not?—Ed, I M G (Mosquito nets not supplied and no funds can be obtained to buy them.)

Monthly incidence of different forms of malarial fever in India

	January	February	March	April	May	June	July	August	September	October	November	December	Total	Percentage
Calcutta Major Leonard Rogers, two years' cases { Quartan B Tertian M Tertian	5 4	5	1 4	5 1	6 1	1 1	1 8	10 7	10 8	11 18	17 31	1 21	5 96 99	25 48.0 49.5
Megaw Calcutta, Medical College { Quartan B Tertian M Tertian	6 9 16	6 9 3	3 2 5	5 1 6	1 2 5	1 4 4	2 2 7	4 11 13	18 25	3 14 44	4 20 39	3 16 26	34 112 193	10 33 57
Powells, two years, Bombay { Quartan B Tertian M Tertian	1 74 77	1 50 61	2 69 50	3 59 60	9 72 60	6 64 72	2 132 87	2 140 82	2 113 88	2 137 130	2 146 139	2 108 113	32 1,164 1,019	1.4 52.6 46
D. L. Lanza Hope, Eastern Bengal { Quartan B Tertian M Tertian Mixed	123 16 72 4	122 9 35 7	141 20 29 14	46 20 61 11	60 49 28 8	85 27 16 8	72 16 19 5	64 7 28 2	51 9 33 6	49 7 62 3	51 25 81 17	69 23 78 7	937 217 221 82	52.3 12.2 30.6 4.6
Peshawar, June 1908, October 1909 { Quartan B Tertian M Tertian	5 22 5	7 41 13	4 27 10	35 52 16	1 79 10	2 21	2 45	93 77	1 62 104	57 57 131	3 69 107	2 71 97	25 681 636	1.7 50.8 47.5

"Some prefer one method, others another, when one plan proves unsatisfactory another should be tried" So we can now fully appreciate how these differences in opinions arose, as to what dose, at what intervals this drug should be employed, therefore we have medical officers dealing chiefly with Benign Tertians advocating (1) and (2), those dealing with Quartans finding (3) fully satisfactory, whilst those dealing chiefly with Malignant infections finding larger doses like 15—20 grains more satisfactory if given with greater frequency.

Major Andrew Buchanan, I.M.S., in his book on "*Malarial Fever and Malarial Parasites in India*," page 110, gives the results of his experiments in this field. On the 11th of September 20-grain doses of quinine were given to 400 men once a week, and as a control some 400—600 men were taken, the weekly total admissions are given in the following tables—

Commenced September 11th	RECEIVING QUININE 400 MEN				NOT RECEIVING QUININE 600—700 MEN			
	Quartans	B Tertian	M Tertian	No parasites	Quartan	B Tertian	M Tertian	No parasites
1st week	0	3	7	1	0	7	8	11
2nd "	0	0	2	1	0	12	16	8
3rd "	1	0	1	4	1	9	8	30
4th "	0	0	4	6	1	6	11	14
5th "	0	1	3	1	0	7	7	8
6th "	0	0	0	0	0	12	2	10
Total to Oct 21st	1	4	17	13	2	28	52	81*

From this he points out that large doses (20 grains once a week) would probably prevent nearly all the admission for Benign Tertian, but

* Many of these cases were probably influenzal in origin (Author's note)

these doses had not such a marked effect in preventing Malignant Tertians.

Lt-Col C. N. C. Wimberly, I.M.S., of the 15th Sikhs, has kindly allowed me to use the following facts from his yearly returns for 1908 and 1909, in order to substantiate the above view. In 1908 his regiment was quartered at Ferozepore, during this year there was a severe epidemic of Malignant Tertians all over the Punjab. Two consecutive doses of 10 grains were administered twice a week from 7th August 1908 to 31st November 1908. A muster roll was kept for the attendances. The monthly returns were as follows—

January	February	March	April	May	June	July	August	September	October	November	December	Total
7	3	0	0	6	10	1	6	59	54	12	12	170

As the result of microscopical examination, 45 cases were due to Benign Tertian and 110 due to Malignant Tertian. Twenty cases of pyrexia of uncertain origin were admitted.

In 1909, the regiment was quartered at Nowshera, quinine administration in the above doses was commenced on 23rd June and the monthly incidences were as follows—

January	February	March	April	May	June	July	August	September	October	November	December	Total
15	8	8	19	28	41	5	8	9	10	8	19	181

There were 181 Benign Tertians, 1 Quartan, 14 Malignant Tertians, 163 cases of "pyrexia of uncertain origin" occurred during October and November, the latter were examined microscopically with negative results. The fever was 3—5 days' duration, often associated with influenza.

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symptoms, 8% had rashes, this fever corresponded to the character of Papatasi fever.

During 1909, the 59th Scinde Rifles, F F, were stationed in Peshawar, all the bloods of the fever cases were examined from the middle of January to the beginning of October, when I handed over the charge of the regiment. I had intended during September to continue the dose of 10 grains in two consecutive doses, given every 8 days, to show how little effect this had on Malignant Tertians and then in October and November treating the disease properly. But unfortunately the experiment was never completed.

and sepoys. At the same time the infectious nature of this fever should be more widely recognized and all cases harbouring crescents should be segregated at night by mosquito nets, in fact they ought to be regarded in the same light as chronic bacillary carriers.

It is hoped that the length of the paper will not detract one from the main points advanced in it. For a criticism to be effective it must be one of two things, either it should be brief, pointed and epigrammatic, or failing this, the mass of facts presented should guide one to a just appreciation of the subject of which many are only partly familiar. By so doing it is

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Total cases	32	14	20	14	40	48	16	20	65	57	26	6	358
B T	12	7	11	9	29	43	2	3	6	Handed over charge of the regiment			
M T	5	3	5	1	4	5	10	6	45				
Quartan	12	1	0	0	1	0	1	0	0				
Mononuclear increase over 20% Pigmented Leuco's	12	3	4	4	6	0	3	11	14				

The last question we have to decide, is what beneficial results can be obtained from this method of drug immunization. From the scanty data we have in our possession, and also from the results of practical experience, it will be seen that this method, if employed alone, cannot absolutely control an epidemic, but amongst troops and in jails it can—

(I) Decrease the number of malarial cases by about 50 per cent to 80 per cent at the very most, and this only when the dose is given regularly and in an adequate manner as pointed out above.

(II) It undoubtedly decreases the gravity of the cases, and hence amongst troops we get a very low mortality. In Peshawar during the severe epidemic of Malignant Tertian in 1908, very few cases of perniciousness were observed in the Regimental Hospital compared with those seen in civil practice. Whilst the so-called "Peshawar fever" (pernicious Malignant Tertian with vomiting and passing of blood) are rarely seen now-a-days, judging by the mortality it must have been extremely common and virulent in former times.

(III) By decreasing the actual number of cases, it would of course limit the extent of the infected feeding grounds for the anopheles to browse upon. But in regimental lines the women and children are not treated efficiently, and consequently always form potential foci for an epidemic to occur. In a like manner the cases harbouring sporonts in the blood should always be isolated until their blood is declared free of crescents.

So it will be seen that this method, if properly and systematically carried out, will further reduce the number of cases amongst the soldiers

hoped that it will stimulate a more careful and thorough working of this branch of malarial prophylaxis, and on the adoption of a more rational system, in time we may possess some definite data in order to guide us how to obtain the maximum degree of immunity with the minimum amount of dosage.

REMARKS ON ASCARIASIS IS THERE A ROUND WORM FEVER?

By P. HENIR, M.D., F.R.C.S. (Ed.),

Lieut. Col., I.M.S.,

Lansdowne

I WOULD be very glad to receive through the columns of the *Indian Medical Gazette*, the opinions of medical men who have made any observations on the subject, whether they consider there is such a clinical entity as round worm fever to be met with in this country. One has, personally, perhaps on insufficient evidence, come to the conclusion that round worms are sometimes responsible for a short-lived fever, which in many respects resembles an irregular form of what used to be called *Febricula* or *Simple Continued Fever*. The onset is insidious and without rigors, the patient has felt indisposed for some days previously, there is usually a slightly coated tongue, loss of appetite, some constipation, and headache, and there may be nausea and wandering pains or discomfort about the umbilical region. The temperature rises from 101 to 102.5, reaching its maximum on the second or third day. After a dose of calomel followed by a diaphoretic of pulv. jalapæ co., or a Seidlitz powder, the fever disappears abruptly on the

third or fourth day. If the nature of the condition is suspected on the first day, *santonin* followed by a purgative given, and the worms expelled, the fever abates on the second or beginning of the third day, and does not return. If the condition is not recognised, and no aperient is given, the fever, with slight constitutional symptoms, may continue for 5 or 6 days and then disappear by lysis, in some cases to return at irregular intervals of from 5 to 6 weeks to 6 months. An examination of the blood will usually reveal some eosinophilia (which may be up to 20 per cent or more), leucocytosis and occasionally slight anæmia. When the nature of the case is at once suspected, a microscopical examination of a small particle of the *feces* reveals the eggs of the *Ascaris lumbricoides*.

One's attention to this pyrexial condition was originally directed by Senior Hospital Assistant Hosain Ali, about 10 years ago, who remarked on the frequency with which the dislodgment of round worms was associated with the disappearance of any fever that was present. Since then one has so repeatedly observed this sequence, that one is disposed to consider it more than a coincidence. In all cases of undefined fever which one knows is neither malarial in origin or due to the enteric bacillus, one examines the stools for the ova of round worms, and if these are present, gives a dose of *santonin* and compound jalap powder or castor oil, and in a certain proportion of these cases, this treatment brings the fever to a close. One is convinced that a form of fever occasionally occurs from the presence of this worm in the intestines and that both in children and adults, being more frequent in the latter. It appears to be a safe rule to treat all cases of undefined fevers in natives, whose clinical course has been watched, and whose etiology has been enquired into with negative results, with *santonin* and a purge. The fever referred to these worms is as a rule unconnected with acute inflammatory changes in the bowels, although they do at times indirectly set up such changes by causing a congested state of the intestinal mucous membrane, in the presence of which the ordinary fauna of the intestines are stimulated to increased activity and the creation of toxins.

There are few conditions that can give rise to such a multiplicity of clinical manifestations as round worms, and one would suggest that the term *Ascariasis* be used to embrace the varied clinical phenomena associated with round worm infestation.

Personally one believes that round worms produce not only mechanical and reflex effects, but that they are capable of manufacturing toxins, one of which is pyrogenetic, and another that is capable of bringing about an intense toxæmia which induces profound nervous pros-

tration. The pyrogenetic toxin is, I believe, absorbed into the general circulation and in some way brings about a disturbance of the thermotoxic mechanism. One has found this pyrogenetic effect more frequently in adults, and the general toxæmic effects, without pyrexial phenomena, more frequent in children between 3 years and 10 years of age.

Round worms are by far the commonest intestinal parasites in this country, occurring at all ages between 6 months and 60 years, in both sexes, and they were most frequently multiple. They are seldom met with in infants under 6 months of age, although they have been found in those under 3 months. Probably every native of the lower classes, and a large proportion of those of the better classes, have been infected with them several times. The extent of their prevalence is well known to all physicians of our large Indian Hospitals. Where the evacuations of all patients are examined as a routine practice, there is seldom a day in which the physician is not told that one or more inmates of the hospitals have passed one or several round worms in the *feces*, or vomited them. So prevalent are these worms in India among children, who may become re-infected with them several times yearly, that it is a good rule to give them *santonin* and an aperient once or twice a year systematically.

There is no difficulty in understanding the manner in which infection takes place. The soil everywhere in and around villages and towns in India contains the ova, and through it water and food, especially green vegetables, become contaminated. The conservancy arrangements of all villages and most towns is to a large extent responsible for the prevalence of these worms. I am disposed to believe that the use of ordinary earth for scouring the feeding and cooking utensils, as practised by the masses in India, is answerable for part at least of the prevalence of round worms. In one's own regiment one has the sand used for this purpose sterilised by dry heat in large iron dishes (*tarvas*) or in metal *degchues*, collected and stored in covered boxes in the cook-rooms, to be used by the men as required. One is also convinced that the universal custom of *leaping* the floors, verandahs, and cooking places, with a layer of clay and cow-dung, is a prolific source of infestation by round worms. The moisture contained in this mixture provides the ova with the filip they want to enable them to develop. The eggs are not infective until such time as the embryo has reached its maximum of development within the shell, which usually occupies a period of four or five months, but under favourable circumstances as in warm water, or moist earth, this may be reduced to a month or less. This custom of coating floors, etc., with a layer of cowdung and mud may be legitimately incriminated in connection with other diseases also, and should be condemned.

A Mirror of Hospital Practice

NOTES ON SCHLOSSER'S METHOD OF ALCOHOLIC INJECTION FOR TRIGEMINAL NEURALGIA *

By T W HARLEY,

CAPTAIN, I M S,

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I HAVE recently had the opportunity of treating two cases of trigeminal neuralgia by the method elaborated by Schlosser of Munich, two cases are of course totally inadequate for the purpose of passing judgment on any method of treatment, but as cases of trigeminal neuralgia, which resist medicinal and local treatment—and it is only to such cases that this method of Schlosser applies—are comparatively rare in this country, and I may not have the opportunity of treating another case for some time, I think it would be advantageous to give you my results in these two cases. Schlosser introduced his method as an alternative for gasserectomy, that is to say, as a method of treatment for those cases of *Tic douloureux* which were uninfluenced by local or medicinal measures. The method consists of the injection of 75 per cent absolute alcohol into the divisions of the fifth nerve at their foramina of exit from the skull, and from an experience of 123 cases Schlosser claims that in the vast majority of cases (I am sorry I cannot give the actual percentage) the pain is relieved and remains absent for a period, the average duration of which was between 10 and 11 months, that each relapse is milder than the previous attack, and that it can be relieved again by an injection, and that the intervals between the relapses tend to become progressively longer, that no deformity is produced, no motor paralysis occurs, and that though there is frequently some cutaneous anæsthesia, this usually passes off within a few days, and moreover, the injection can be given in a few minutes under local anæsthesia. If these contentions can be substantiated, no one would of course dream of performing such a severe intracranial operation as gasserectomy. The technique of the injections as described by Schlosser is as follows:—A stout needle, 10 cm long is fitted with a blunt stylette which projects just beyond the sharp tip of the needle, and the needle itself is marked off in centimetres so as to be able to determine the depth to which it has penetrated. The needle is introduced through the skin with the stylette partially withdrawn, the stylette is then pushed home, and the remainder of the penetration made with the blunt-ended instrument, by this means vessels are pushed aside, and bleeding is reduced to a minimum, when the instrument

has reached the foramen the stylette is withdrawn, the injection made very slowly, and the needle left *in situ* for a few minutes and then withdrawn gradually so as to prevent the fluid from exuding through the puncture wound. The injection is made under local anæsthesia and the patient feels along the distribution of the nerve a burning pain which shows that the injection has reached the correct spot. The injection consists of absolute alcohol 5vi, distilled aqua 3ii, to which is added a little cocaine or beta eucaine in order to mitigate the pain that usually follows the injection. Now it will be remembered that the fifth nerve issues from the pons varolii in two roots, a large sensory and a small motor root, these then proceed forwards towards the apex of the petiotemporal bone and here the sensory root enters the gasserian ganglion, from which three large nerves emerge, *viz*, the ophthalmic, the superior maxillary and the inferior maxillary nerves, the inferior maxillary nerve being completed either within or immediately without the foramen ovale by being joined by the motor root of the fifth nerve, whilst the other two nerves contain only sensory fibres.

We will consider first, the inferior maxillary division, this emerges from the base of the skull through the foramen ovale, which is placed immediately behind the root of the external pterygoid plate, and it is here that the injection must be made into the nerve. Schlosser reaches the foramen by inserting the needle at the lower border of the zygoma, one inch in front of its descending root, which can be easily felt immediately in front of the anterior border of the external auditory meatus, the needle with the stylette pushed home is then directed horizontally inwards with a very slight inclination forwards through the masseter and posterior part of the temporal muscles until it strikes against the external pterygoid plate, the point of the instrument is then made to feel its way upwards along the external pterygoid plate until the angle between the pterygoid surface of the great wing of the sphenoid and the external pterygoid plate is recognized, the point is then directed backwards until the posterior border of the base of the external pterygoid plate is reached and at this point the needle is then deflected slightly upwards and pushed on into the foramen ovale, and the injection made.

The superior maxillary division leaves the cranial cavity through the foramen rotundum which opens into the posterior part of the pterygo-maxillary fossa, to reach the foramen rotundum, Schlosser directs that the line of the posterior border of the orbital process of the malar bone be prolonged downwards to cut the lower border of the zygoma and at a point $\frac{1}{2}$ of an inch posterior to this the needle should be inserted, it is then pushed inwards with a slight inclination upwards and it reaches the foramen rotundum in the pterygo-maxillary

* A paper read at S I Branch, B M A

fossa at a depth of about 5 centimetres from the zygoma

The ophthalmic division now remains to be considered, after the nerve has taken origin from the gasserian ganglion it traverses the lower part of the outer wall of the cavernous sinus, and then when still within the wall of the sinus and close behind the inner end of the sphenoidal fissure, it divides into its three terminal branches, *viz*, the lachrymal, nasal and frontal nerves, or more correctly speaking, it gives off its lachrymal and nasal branches and is continued forwards as the frontal nerve, these three nerves then enter the orbit through the inner end of the sphenoidal fissure, the lachrymal and frontal nerves passing above the level of the muscles, and the nasal passing between the two heads of the external rectus muscle. To reach the division it is recommended to insert the needle at the outer angle of the orbit just within the fronto-malar articulation and pass it along the outer wall of the orbit to a distance of about 4 centimetres, or the needle may be entered at the orbital margin midway between the supra-orbital notch and the fronto-malar articulation and passed along the roof towards its outer side. Now, as regards these injections, my experience is confined entirely to those into the superior and inferior maxillary nerves. I have not yet had occasion to give an injection into the ophthalmic division, and, to speak the truth, I am yet to be convinced that such a procedure is without danger. Looking at it from a purely anatomical standpoint, I see several pitfalls. First, excepting the knowledge of the distance at which the point of the needle is from the surface, there is nothing to prevent the needle passing straight into the cranial cavity, and as the long axis of the orbit varies in different individuals sufficiently to make a considerable difference, the knowledge of the distance of penetration is not reliable. It may be argued that no great harm would be done by entering the cranial cavity, and I cannot say what effect would be produced by the introduction of six drachms of 75 per cent alcohol into the subdural or sub-arachnoid space. It may possibly be harmless, but it does not seem to be the correct place for such strong spirit, and I therefore mention this as a potential danger. Secondly, if the direction taken by the needle in making this injection is noted, it will be observed that the point will enter the inner end of the sphenoidal fissure and that about $\frac{1}{4}$ inch behind the inner end of this fissure lies the cavernous sinus and the internal carotid artery, both of which could, anatomically speaking, be penetrated fairly easily with conceivable—indeed even probable—disastrous effects. Now, thirdly, supposing the injection is made at the correct spot, the ophthalmic nerve is present here in the form of the frontal, lachrymal and nasal nerves, and here also, we find crowded together within a very small compass the oculo-motor,

trochlear and abducent nerves, the optic nerve, and the large ophthalmic veins. Schlosser admits that the ophthalmic division is more often missed than not, but I fail to see how it could be struck unless the cavernous sinus was penetrated also. However, he says, actual penetration of a nerve is not necessary, though desirable, because if the alcohol be injected in the immediate neighbourhood of the nerve, it diffuses into it. It presumably, therefore, diffuses also into the oculo-motor, trochlear, abducent and optic nerves, but apparently from the reports published, nothing more than a very transient paralysis of these nerves need be feared. What would be the effect of wounding the ophthalmic veins I cannot say, but it must be remembered that these veins are the principal radicles of the cavernous sinus and are therefore not to be lightly considered. These, then, are the possible dangers that present themselves to me from an anatomical standpoint, and as far as I can discover from the published reports, only a few injections have been made into the sphenoidal fissure. Dr. Puires Stewart in his recent report of fifteen cases, had three involving the ophthalmic division, one of which was cured at the sixth injection, one was a failure, and one was cured after three injections into the foramen rotundum, but this last must be doubted as the ophthalmic nerve does not emerge from the foramen rotundum. More results must, therefore, be published as regards this division of the fifth nerve before any conclusion can be arrived at as to its freedom from danger, or even if not quite free from danger, as to whether its mortality would be less than that attendant on gasserectomy.

Now, as regards the injections into the foramen ovale, I do not think that the procedure recommended by Schlosser is the best. In making experiments on the cadaver, I found that the needle is liable to pass by the foramen ovale owing to the sigmoid notch of the mandible not allowing the handle of the needle to be lowered sufficiently to make the point enter the foramen. From an examination of the skull I found that it was possible to make the injections into the foramen ovale and foramen rotundum through the same skin puncture, and with greater confidence of reaching the foramen ovale. The angle between the lower border of the zygoma and the anterior margin of the coronoid process (when the teeth are clenched) practically corresponds to the site of puncture as recommended by Schlosser. It is not always easy to define the posterior border of the orbital process of the malar bone, but this angle can always be found by inserting the needle at the lower border of the zygoma and about $\frac{1}{2}$ inch behind the anterior border of the masseter muscle when contracted. The needle is then driven straight inwards until it strikes the outer surface of the coronoid process and then moved bodily forwards until it reaches the anterior border

of the coronoid process at the lower margin of the zygoma. To reach the foramen ovale the needle is then pushed inwards and slightly backwards till it strikes the external pterygoid plate, in the same way as before the point of the needle feels for the angle between the pterygoid surface of the great wing of the sphenoid and the external pterygoid plate and then for the posterior border of the base of the external pterygoid plate. Having reached this spot the handle of the needle is lowered through about 30° and the needle pushed on when it almost must enter the foramen ovale.

My first case was that of a Eurasian woman, aged 42 years, with typical trigeminal neuralgia affecting the second and third divisions of the nerve. She had suffered for three years, and during that time she had tried every medicinal measure. All her teeth, both upper and lower on both sides, had been extracted, the right upper alveolar process had been chiselled away, and lastly, in the General Hospital, Madras, a neurectomy of the infra-orbital and mental nerves had been performed, but none of these had the slightest effect. On four occasions I made an injection of alcohol into the foramen ovale and foramen rotundum. She had transient periods of complete anæsthesia, but the final result was entirely disappointing. She was too disgusted to undergo any further injections and though she was quite willing, her husband refused to allow her to undergo the operation of gasserectomy.

My second case was that of a Hindu male, aged about 50 years. The neuralgia affected only the third division of the nerve but was extremely severe, and the spasms recurred almost every five minutes, the duration of his complaint was about four months. Major Gabbett, I.M.S., first injected an and then performed neurectomy of the inferior dental nerve but without effect. Accordingly he requested me to give an alcohol injection into the foramen ovale. This I did, and from the day of injection until he left the hospital, a fortnight later, the pain had entirely left him.

Of the two cases, therefore, one was a failure and one a success. As regards the failure, however, one ought not to stop at the fourth injection. Some of the cures reported have been obtained only after seven or eight injections, but why they should not be cured at the first as well as at the eighth is not quite clear. I am inclined to think that the explanation lies in the fact that the nerves are not penetrated as often as the operator supposes. There is no doubt, therefore, that in some cases of trigeminal neuralgia this method of Schlosser is successful. It is perfectly easy to perform after a little practice and is apparently quite devoid of danger, with the possible exception of the injection into the ophthalmic division. The steps which one must follow, therefore, in future in treating a case of trigeminal neural-

gia are, first, medicinal and local measures, if these fail, alcohol injections, and if these fail after repeated attempts, recourse must be had to neurectomies and finally gasserectomy.

PAINFUL HEEL, WITH SKIAGRAM.

BY F. P. MAYNARD, M.B., I.R.C.S.,

LT COL, I.M.S.,

AND

A. DENHAM WHITE, M.B., B.S. (London),

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IN the *New York Medical Journal* in 1909 Dr. T. D. Steinhardt published a paper on painful heels which was commented on in the *Lancet* of June 12th, 1909. Patients complain of severe pain and tenderness in the heel or heels in walking. A frequent cause of this is the formation of a spicule of bone projecting forwards from the anterior edge of one of the tuberosities of the



os calcis. It appears to be either in the plantar fascia or the long plantar ligament, and is probably secondary to a periostitis, the result either of injury or of gonorrhœa. It has been described as an exostosis but hardly appears to be of that nature. Males are more commonly affected than females and gout and rheumatism have also been accused as causes. The gonococcus was grown in culture from a spicule of bone removed in one case. Mr. Reginald Morton records a case, with skiagram, in the *Lancet* of July 24th, 1909, which is reproduced with a good stereoscopic skiagram in the 1910 *Medical Annual*, p. 372. The patient whose case is now recorded is a European, aged about 50, who gives a definite history of trauma produced by stamping vigorously with the foot while dancing a reel at Christmas. Pain was felt in increasing degree after that and most sports became impossible. There was no history of any of the diseases to which painful heel has been attributed. The probable presence of a projecting spicule of bone at the site of acute pain on pressure was diagnosed and the patient was sent to Captain Denham White who took a skiagram. The plate shows beautifully the various bones and the spicule projecting from the tuberosity of the os calcis. The reproduction is

not so well defined of course. Treatment so far has been local and unsatisfactory. In time the patient may agree to operation. This has generally been done by a median incision, but it would appear important to avoid a scar in the centre of the sole and an incision more to one side would be preferable, either linear or flap.

NOTE.—The heel has recently been operated upon by a curved incision and the spicule removed from the inner tuberosity by chiselling. The wound has healed, but there is still some tenderness of course.

A SCREW-WORM BENEATH THE CONJUNCTIVA

By R. H. FLLIOT, FRCS,

MAJOR, I.M.S.,

Madras

NAME, G. T. K., sex, female child, age, 7 years, caste, Hindu, admitted to the G. O. Hospital, Madras, on 2nd January 1910. Has always lived in Madras. Nothing noteworthy as to her habits or food could be ascertained.

History and present condition—About a month ago the mother noticed a small painless swelling about the size of a mustard seed situated at the lower fornix near the inner angle. This has been growing slowly and now measures 12 mm horizontally, 6 mm vertically and about 4 mm in depth. A yellow, flattened, irregularly rounded swelling presents on the inner side of the left fornix pushing up the conjunctiva in front of it and originating apparently in the tissues below the fornix. The tumour can be followed down beneath the infra-orbital margin. It is roughly of the shape of the bean with the notch pointing outward. The superficial structures are freely moveable over it. It does not appear to be fixed to the deeper structures, there being a certain amount of lateral movements. No tenderness, no roughness. The conjunctiva round the tumour is a good deal congested. The portion of it which bulges through into the fornix is yellow and but very slightly vascular. There are some deep-seated cervical glands on both sides. Molluscum spots are seen on the lids. The skin over the swelling is slightly congested. Patient's health is otherwise normal.

6th January 1910.—Before operation began a small black spot was seen on the inner face of the projection. As soon as pressure was put upon the tumour, this escaped with a quantity of thin creamy pus. It then looked like a maggot. A dense walled cyst with a sloughy lining was dissected out.

Pathological report by Captain A. C. Ingram, M.D., I.M.S.—The whole tissue appeared to be inflammatory, due no doubt to the presence of the screw-worm, which I think is probably a *macellaria larva*.

Remarks—The interest of this case lies in the fact that only one maggot was found, that the

mischievous it did was so strictly limited, and that the patient was a healthy girl. The last point probably explains the other two. The reader is referred to Dr. R. Lloyd Patterson's paper on "An Indian Screw-Worm" published in the *I. M. G.* for October 1909.

A CASE OF BILIARY COLIC OCCURRING IN A CHILD, FOLLOWED BY THE PASSAGE OF A GALL-STONE, CATARRHAL JAUNDICE, RECOVERY

By F. H. GLEESON, L.R.C.P. & S. (Ind.),

Sambalpur

EDITH, C., aged 1 year 9 months, was seized with an attack of severe colic in July 1908. There was severe pain in the abdomen, vomiting, great prostration, and cold sweats—lasting about three hours. She had a similar attack every month, and on the 17th November 1908, had an unusually severe one which was accompanied with fever. On the following dates she had attacks of colic varying in severity—

28th November 1908	Slight	attack	
9th December 1908	Severe	do	
10th December 1908	Severe	do	(accompanied with fever)
1st January 1909	Severe	do	
2nd January 1909	Severe	do	
18th February 1909	Medium	do	
22nd February 1909	Medium	do	
23rd February 1909	Medium	do	
8th March 1909	Medium	do	
14th April 1909	Medium	do	(accompanied with fever)
16th May 1909	Medium	do	

The most severe attack of all began on the 16th July 1909 and lasted three days. It was followed by great weakness and the child was in bed for a week. On the 2nd August 1909 there was a slight attack and this was followed by the passage of a gall-stone about the size of a very small pea. Since then there has been no more colic. After the gall-stone was passed the motions became colourless and pasty, and the urine was noticed to be darker than usual. Jaundice was first noticed on the 5th August 1909, but it was slight. By the 29th August 1909 the jaundice had become much more pronounced, the stools were quite colourless, the urine was deeply stained with bile, and the child had fever ranging from 99 to 100. On physical examination I found the edge of the liver to be $3\frac{1}{2}$ " below the costal margin in the nipple line. It was evident that in addition to gall-stones the child had got catarrhal jaundice, due probably to a chill from exposure during the rains.

I put the patient to bed and kept her on a light diet, consisting of diluted milk, diluted broth, and thin toast. I had the liver massaged thrice daily with potassium iodide ointment, and prescribed a mixture containing small doses of sodium sulphur, sodium iodide, sodium bicarbonate, and

podophyllum, also a powder consisting of hydricrete, sodium bicarb, and pulverized to be given every night. This treatment was continued for a month with slight improvement in the case. I then added chionia in drachm doses to the mixture. In about a week's time, *i.e.*, about the 7th October 1909, definite signs of improvement were apparent. The massage, light diet, and mixture were persevered in and by the beginning of November 1909 the urine was clear, skin and sclerotics clear, and the stools quite their natural colour again. The child at the present time is quite healthy—without jaundice—and has had no more attacks of colic.

VACCINE TREATMENT IN A MOFUSSIL HOSPITAL

By T H DELANY, M.D., F.R.C.S.I.,

MAJOR, I.M.S.,

Civil Surgeon, Arrah

A BRIEF description of the treatment of two surgical cases by the vaccine method, where the vaccine was made in a Mofussil Hospital, may interest those who have not a well-equipped bacteriological laboratory at their disposal.

A Hindu boy, aged 7 years, was admitted into the Arrah Charitable Hospital in June 1908, with a compound fracture of the left humerus, caused by a fall from a tree and gangrene of the limb, the result of a constricting bandage applied in his native village. I immediately amputated the limb. The operation wound suppurated, and the boy began to go rapidly down hill. Fourteen days after the operation he complained of pain over the bladder, and had some retention of urine, necessitating the use of a catheter. An ill-defined swelling formed in the pelvis and upper part of the thigh close to the left side of the symphysis pubes, the cause of which was not at first apparent. Two days after the appearance of the swelling he passed pus in his urine, and next day I made an incision in the thigh over the pectineus muscle, and in the abdomen parallel with and above Poupart's ligament. I found a large abscess cavity containing a number of pieces of dead and free bone which I removed, leaving a gap that plainly showed that practically the entire pubes and the greater portion of the ischium on the left side had been broken at the time of the accident, and subsequently necrosed. He passed no more pus in his urine.

The boy's condition did not improve, however, he continued to get hectic fever and was rapidly emaciating. A curious feature of the case was that the pus coming from the amputation wound was similar in colour (light green) and odour to that coming from the pelvic abscess. Believing that I was dealing with the same coccus or bacillus of suppuration in both wounds, I prepared a vaccine by inoculating an agar plate

from the arm wound. A number of colonies apparently similar in character resulted, from which I inoculated an agar slope and incubated it at 37°C for 24 hours. An even growth resulted, over which I poured 5 cc of sterile normal saline solution, and gently rubbed the growth off with a pipette.

To the resulting solution I added pure carbolic acid to make a dilution of 5%, and it was then poured into a bottle on to which a rubber cap was fixed. This was then subjected to a temperature of 60°C for $\frac{1}{2}$ an hour.

Next day the patient was given 2 minims hypodermically of this "vaccine." A reaction resulted showing that the dose was too strong, so $\frac{1}{2}$ a minim was given six days later, without causing any reaction. After the second inoculation the temperature remained below 99°F, although previously temperatures of 103°F and higher were common, and after the 3rd dose the temperature came down to normal and so remained. Inoculations were now continued at intervals of six days, and the result was that the wound healed after 5 inoculations.

The boy rapidly put on weight and left hospital perfectly well.

The next case was a Constable, who, while on special duty on the E. B. State Railway, was knocked down by a train, and received a compound fracture of his right humerus about the middle. He was brought into a Calcutta Hospital, and later sent up to this his original district of service. On arrival here the wound was very septic looking, and the patient was covered over a great extent of his body with a well marked erysipelatous rash. He had delayed on the journey and travelled in crowded trains without having his wound dressed for three days, so that his condition was thus accounted for. The usual antiseptic methods caused his wound to assume a fairly healthy aspect, and got rid of his erysipelas. But the wound could not be got to heal by any means. I opened it twice, and freshened the ends of the bone but without effecting anything. At last after some months of treatment I decided to try a vaccine, and made one precisely as detailed above.

The first dose of 2 minims caused a slight reaction with rise of temperature, but on reducing the dose to one minim no reaction was subsequently produced. Five inoculations in all, with an interval of five or six days between each, were given. The wound healed after the 4th dose. Unfortunately the bone has not united, but the favourable result produced by the vaccine cannot be denied.

I publish the above to shew that the complicated processes of standardizing the vaccines, and taking opsonic indices are not absolutely necessary, and trust that my experiences in these cases may encourage others in the mofussil who have not the immediate help of a bacteriologist or a well-equipped laboratory at their disposal to try the vaccine treatment for themselves.

The manufacture of the vaccines in the above cases required no more complicated apparatus than can be found in any well-equipped Mofussil Hospital. I should mention that I obtained the agar tubes ready made from Calcutta. I would advise, however, that smaller initial doses be used than those I employed so as to avoid unpleasant reactions.

FOREIGN BODY IN THE RECTUM

By AEST SURGN DIAL DASS SAIGAL,
Jhelum

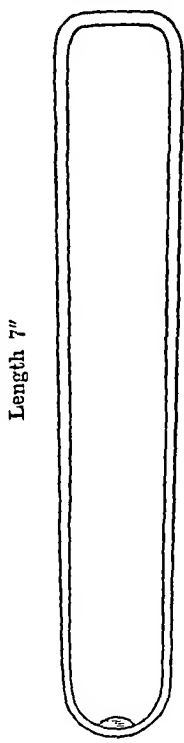
AN old man, aged about 55, came to the hospital this morning, to have a piece of bamboo stick extracted from his rectum, where he said it had accidentally slipped in the evening before and could not be got out.

The reason he gave for its presence in the rectum was, that he was in the habit of bursting an abscess which occasionally formed near his anal aperture with the aid of this piece of stick, after which he used to get relief.

He had been thrusting it in the rectum for full forty years. But this story seemed to be a concocted one.

Apparently he was in the habit of practising sodomy with it as a passive agent and regularly using it for the purpose. On examination a very big piece of stick was found inside the rectum—it was smooth, having a hole at its lower end which admitted the end of the little finger. The anus was very loose and lax. Lithotomy forceps were used to catch it but to no effect, the wooden piece could be easily felt in the abdomen even as high as the pit of the stomach when it slipped up. Soap and castor oil enema was tried but to no effect. At last under chloroform the piece of stick was removed by pressure with hand over the abdomen by an assistant and by dilating the anus with the fingers, the stick was removed with the aid of two index fingers inserted in the rectum. The diagram of its actual size is given herewith. The right index and the left middle fingers of the patient presented abrasions apparently by having used them for the purpose by inserting them in the whole of the stick while using it for his purpose. It was further alleged that it was a sort of yog called (Nabbi Karam) for cleansing the rectum up to the umbilicus by removing filthy matter with the aid of the stick by giving a few turns. It is also said that persons who do this tie a piece of thread to it which this man unfortunately did not do.

Upper end
rounded, $1\frac{1}{4}$ "



Lower end

SUB-LINGUAL CALCULI

By S N MUKERJEE,

East Indian Railway Hospital, Ambala

A MALE, Hindu, aged about 18 years, came to me complaining of some uneasiness and pain over the submaxillary region and some difficulty in moving his tongue. On examination a small hard lump was found in this region.

In a few days the swelling increased in size with pain and hardness and increased secretion of the salivary glands. Within 15 days' time it became so tender that I suggested an operation at once, although there was no fluctuation.

I made an incision over the mucous membrane underneath the tongue and touched a hard substance with the tip of the knife. I then dissected the part and extracted a stone of the size of a big almond, about 2" in length and $\frac{3}{4}$ " in breadth, with rough surface and oval-shaped. There was no pus.

The point of interest in this case are as follows. In these cases generally the salivary glands become actively secreting at meal time and the calculus by preventing escape of the salivary fluid, causes distension of the gland and pain rendering mastication difficult, but such was not the case here. Indeed, the patient never felt any difficulty in mastication nor was the salivary secretion impaired, and there was no pus surrounding the calculi, also it is strange that the calculus should have got to such a large size without causing much inconvenience.

Dr G Deycke concludes an article (*The Therapist, June 15th*) on Nastin in Leprosy in the following words—

"In concluding, I believe that the results of my examinations and experiences can be compressed into the two following sentences—

(1) Nastin is a specific, that is, a remedy which directly attacks the inciters of leprosy.

(2) By the Nastin therapy, provided that it is carried on long enough and suitably, more or less extended improvement of the leprosy symptoms as well as of the general conditions of the lepers can be obtained in a high percentage of all cases.

In Nastin we have undoubtedly a remedy which should not be neglected in the fight with leprosy, for it is not a matter only of improving and curing a single case, but the problem is to reduce the dreadful scourge, and to try to liberate infected countries from it. According to the present standard of knowledge, the official isolation of lepers is the only practical way, but it must be considered that the carrying through of the isolation remedies, especially in tropical countries, is fraught with difficulties which can only be overcome when the patients receive at once a suitable therapeutic treatment which shows chances of success and which can be carried out easily and without special apparatus. Personally, I do not doubt that with Nastin treatment on these lines good results can be obtained."

Indian Medical Gazette.

AUGUST

THE ILLEGAL TRADE IN COCAINE

In these days when the efforts of well-meaning people have succeeded in rousing the Chinese to the possibilities of growing all the opium they want in their own country to the serious detriment of the Indian revenues it is well to remember that opium is not the only narcotic or euphoric drug that is available to mankind.

When we consider the enormous spread of the cocaine habit in India since the time when we called first attention to its existence in Calcutta (in a paper read before the Asiatic Society of Bengal in 1901), we have but little doubt that if the efforts of the well-meaning enthusiasts who have created the present situation in China are even moderately successful, it will only end in the Chinese people falling into the Charybdis of cocaine in their efforts to avoid the Scylla of opium and the last state of that people will be worse than the first.

Any one who realises the enormous extent to which the cocaine habit has spread among many classes in India, especially students and boys of that age, and among many classes, especially the Negroes, in the United States of America, will have no doubt that, as soon as the use of opium is genuinely checked or made really difficult there will, to a certainty, grow up the habit of cocaine-eating among the Chinese, and we leave it to those who have favoured the present movement to decide whether a custom essentially bad, but practised racially for many generations, or the habit of using a new drug against which the race has acquired no resistance, is the worst. For our own part we consider the new vice of cocaine-eating infinitely worse than that of using opium by a people long habituated to the use of the latter poison.

To show the extent to which the evil of cocaine-eating has spread in the United States in spite of by stringent legislation we reproduce the following remarks from the editorial columns of *The Druggist's Circular* of New York (May 1910). These comments were excited by the sensational trial of the Vice-President of the Pennsylvania Board of Pharmacy and some

forty others, "druggists vendors and victims," of this habit forming drug. A bill to place the sale of cocaine, etc., under the supervision of the Federal authorities, is being prepared and it is understood that President Taft is prepared to make the matter a national issue. It came out in the trial that certain retail druggists had sold as much as 200 ounces of cocaine in a month and had received for this the fancy price of no less than 15 dollars an ounce. The purchasers were chiefly pedlars 'who sold it to school children and others addicted to its use.' From one house, conducted by two Negroes, twenty ounces of cocaine were taken and similar confiscations were made in other houses.

We now reproduce our contemporary's comments on this case and its remarks are of the more value as *The Druggist's Circular* is recognised as the leading organ of the drug trade in America.

"Illegal cocaine selling is one of the biggest evils in the drug business. The fact that it is indulged in only by the vicious element in the business is understood in drug circles but may not be generally recognized by the busy public, which reads of the wide extent of the unholy traffic and sees the condemnation by the press of those who engage in it. This situation, to fall into the vernacular, puts it squarely up to the druggists themselves to purge their ranks of those whose offences tend to bring discredit upon the calling as a whole. In Philadelphia at the present time the druggists are engaged in this very task. The Philadelphia member of the Pennsylvania Board of Pharmacy is the leader in the movement. Something of the work is told in our news columns this month. The account makes bad reading and good reading, bad, because it reveals a sordidness, a cupidity, a disregard for the welfare of others on the part of the purveyors of the baneful drug which is appalling in its inhumanity, good, because it shows a determination on the part of druggists, aided by the legal machinery of the State and city, to abate the monstrous wrongs which are practised, partly, at least, under the cloak of pharmacy. The efforts of druggists themselves to stamp out the evil of illegitimate cocaine selling is most commendable. In some States they have secured such stringent laws against the indiscriminate distribution of the insidious alkaloid, and have given the law such support that the cocaine habit has been kept within bounds. In our own State the sale of cocaine except for proper purposes, has been made a felony, and there have been several prison sentences imposed under the law. In North Carolina the Board of Pharmacy has deprived an ex-President of the State Association of his license, for the offence named. In Arkansas the druggists' State Association is behind a very stringent anti cocaine law. In Chicago, Pittsburg, Baltimore, Boston, Richmond, and in various other parts of the country the antagonism of organized druggists to the traffic in the enslaving drug shows

itself almost constantly. The druggists' associations of national scope, wholesale as well as retail, have long recognized the evil and have taken steps to curb it. That druggists are blamed for this evil by the public is true, that this attitude of the public is justified by the facts is but partly true. Self-respecting druggists are not engaged in the cocaine traffic, and even the other kind are not responsible for all of it. Not infrequently cocaine is stolen from wholesale houses by employees and sold to denizens of the underworld, who peddle it among their unfortunate neighbours. Convictions have been obtained in just such cases. The Philadelphia Association of Retail Druggists has long been on record as an active opponent of the illegitimate sale of cocaine. The proceedings at its recent meeting, just now reported, show that it is alive to the gravity of the situation as it exists in its home city at the present time, and is doing something definite to free retail druggists from responsibility for it."

THE PATHOGENESIS OF CATARACT

THE causation of cataract is still a mystery and one the solution of which is of great importance and full of great possibilities. Where in the body except in the eye, is it possible to observe disease in its almost microscopic beginnings and to watch its slow development? It is this fact that has made the cornea the battle ground of the cellular pathologists, and it is this which makes it all the more disappointing that as yet we have not discovered any way of stopping the progress of opacities in the lens.

Much work has been done of recent years, both in clearing the ground of error and in investigating different forms of cataract from new standpoints. Herbert Parsons in his monumental work on the pathology of the eye has detailed the known facts up to the date of publication (1907), and some more recent papers have appeared advancing our knowledge a little further.

The maintenance of transparency and the conditions of optical refraction in the lens demand not expenditure of energy, and therefore involve no metabolic changes. The lens is however, extremely sensitive to changes in the character and concentration of the surrounding fluid. The chemical composition of the lens differs materially from that of the aqueous, it is, therefore, obvious that some protective influences are at work to prevent our approximation by osmotic and other physical processes. These are to be found in all probability in the capsule and its lining epithelium. Fluid cannot enter the lens from without, as the internal is higher than the

external pressure. Filtration outwards does occur pathologically, however, and leads to shrinking of the lens. The passage of fluid takes place by diffusion and not along any spaces. Filtration through the posterior capsule is several times greater than to the anterior, as the latter is so much thicker. In any case diffusion is extremely slow. As Parsons says, from its osmotic properties the lens may be regarded simply as a bladder filled with a saline albuminous solution. If the contents are isotonic with the surrounding fluid no change occurs, a hypotonic solution abstracts water from the lens, causing loss of weight and shrinking, a hypertonic solution gives up water to the lens causing increase of weight and swelling. This is true only in a broad sense, however, since there is evidence that the capsule and its epithelium play a regulating part at any rate *intra vitam*. The lens during life differs in its behaviour from the dead lens in retaining a constant amount of water and in retaining its proteid whilst immersed in a fluid which is not isotonic with it. The *post-mortem* interchange may, however, occur within the living body when the lens is dying or dead, as for example, in cataract, and this accounts for the stages in the ripening of cataract. During the first stage water enters the lens and proteid is given out to the aqueous. During the second stage the increased tension of the capsule causes albuminous fluid to filter out so that the volume of the lens gradually diminishes. The first stage is, therefore, due to osmosis, the second to filtration. Parsons points out that diabetic cataract cannot be explained upon the old theory of the abstraction of water owing to the presence of sugar in the aqueous. For Deutschmann has shown that a 5 per cent solution of sugar is necessary to produce opacity, whilst in a diabetic patient with 8 per cent sugar in the urine not more than 0.5 per cent sugar is found in the aqueous. There is swelling of the lens too as opposed to shrinking in diabetic cataract, which is not what one would expect if the opacity were due to the abstraction of water. An interesting form of cataract is that of glass-blows, in which the cause is probably to be found, not in the great heat, but in the enormous increase of evaporation from the surface of the cornea, aided by the continual sweating from the skin (Leber).

As regards senile cataract Parsons groups the principal theories in three classes—(1)

Intra-lenticular—unequal sclerosis of the older lens fibres. This only puts the question back a stage—why should there be unequal sclerosis? Why, if true, is cataract not more common in hypermetropia? Why is nuclear cataract met with? In India it is commoner than in Europe apparently, where cortical opacities seem to be more often met with. (2) Chemico-physical,—the nutrition of the lens suffering from the nature of the pabulum supplied to it by the ciliary body. It predicates a shrinking of the nucleus brought about by interference with the normal supply of nutriment. This theory of Peters has been adversely criticised by Leber. (3) Dyscrasic. This, which attributes the causation of cataract to a general disease, may be said to hold the field at present and to give promise of most useful results. The fact that cataract is bilateral predisposes one in its favour. It also explains cataracts that are not senile, and it is quite compatible with the known strong influence of heredity. It likewise holds out hopes of treatment.

Of the work done in recent years we can only call attention briefly to that of two ophthalmologists. Romer while at Wurz- burg (1909), working on Ehrlich's theory of hæmolysins investigated the existence of similar toxins in the lens. After much laborious research he concluded that senile cataract is due to leutotoxins. He compares the lens to a red blood corpuscle, each having a surrounding membrane which impedes the diffusion outwards of important constituents. When the hæmoglobin has passed out of the erythrocyte in cell is dead, so, too, cataract is the expression of the protoplasmic death of the lens fibres. The researches are very abstruse and the conclusions cannot be said to be generally accepted yet. More recently Scalinci of Genoa* has published his researches on 'dyscrasic cataract'. He objects to Romer's senile cytotoxin theory, saying it can only explain the subcapsular form of cortical cataract, and that it is tied to the factor of senility. He regards an organic acidosis of the blood as the essential cause and describes his experiments in trying to produce cataract by organic acidification. Diminished alkalinity of the blood is met with in diabetes oxaluria and in various diseases, and is regarded by this author as the real cause of

dyscrasic lens opacity. The good results reported in some cases of early cataract after administration of iodides, he regards as due to an increase in the alkalinity of the fluid surrounding the lens favouring the imbibition.

These researches require confirmation but they are suggestive.

In India few contributions have been made to the pathogenesis of cataract. Glare has been believed to have some share in its causation and possibly the habit the subjects of it have of stooping over hot and smoky fires. The excessive prevalence of cataract, in India even, though regarded by most people as certain, is not really proved beyond question. From such a huge population the cases might be very numerous without being higher in proportion to the population than in other countries. It is very desirable that cataracts should be investigated from the standpoints taken up by Ernest Roberts in his enquiry into the distribution of vesical calculus†. He found stone prevalence in inverse proportion to the population eating rice as its staple food. Where wheat was the staple food and rice but little used (Punjab, &c), there stone was very much commoner. His scientific explanation of this is ingenious and interesting reading. India with its sharply defined castes and religions, and then strictly observed and limited diets should be an ideal country for tracing out causes of this nature, and if the incidence of the disease could only be ascertained it would no doubt have been done long ago. Statistics gathered from hospitals are fallacious inasmuch as they draw their patients from long distances if at all well-known. Districts showing few cataract operations soon show large numbers if the Civil Surgeon is keen and a good operator. The incidence of the disease anywhere is, therefore, most difficult to arrive at. The theory of altered metabolism, however, as the real cause of lenticular opacities is full of hope and it is satisfactory that it is being well worked out. It should be remembered that opacities can be diagnosed at a very early stage and that if a reliable method of treating them is discovered, then disappearance under it can be observed with certainty and the patient relieved of a most distressing malady without the terrible time of gloom at present spent in waiting for operation.

* Ophthalmoscope, May 1910

† Indian Medical Congress Transactions, 1894, p. 181

Current Topics.

A MAGNA CHARTA OF THE SUBORDINATE MEDICAL SERVICES

THE following very important *Magna Charta* for medical men trained in our Indian Medical Colleges is here reproduced from the *Bombay Gazette* of 8th June 1910 —

No 2590 of 1910

GENERAL DEPARTMENT,
Bombay Castle, 31st May 1910

From L. Robertson, Esq., I.C.S., Secretary to Government,

To Sir Bhulchandra Krishna, K.T., L.M., Chairman of the Meeting of certain Medical Practitioners of Bombay, held on 26th January 1910

Sir—I am directed to state that your letter of the 5th February 1910, submitting resolutions regarding the registration of medical practitioners in India has been laid before Government

2 With reference to the opinion expressed by the meeting of the 26th January that Military Assistant Surgeons and Civil Medical Assistants (now styled Sub Assistant Surgeons) should not be classed as duly qualified medical practitioners for the purposes of medical registration, I am to observe that Government have for many years educated two classes of medical practitioners, primarily for their own Departments and have received them into their service as Military Assistant Surgeons and Civil Medical Assistants on their undergoing a fixed course of training, under competent teachers, at certain Medical Schools and Colleges. No "license" or "diploma" has been granted to these men, but they have been given by Government all the privileges of qualified medical practitioners and have performed as part of their routine work all the duties which could have been demanded of them had their qualifications been of the highest. The Governor in Council therefore does not agree in the opinion expressed by the meeting of the 26th January that members of both these classes who have received regular training on Western lines and passed the recognised tests should be regarded as "unqualified" and classed with Vaidas, Hakims, Ayur Vedic doctors, apothecaries, etc. Government are not aware how far the views communicated by you are shared by the rest of the medical profession in the City of Bombay, but the fact that these two classes of men were included by the Bombay Branch of the British Medical Association in the Committee appointed by that body to consider the question of registration appears to be a strong evidence that the most influential medical men of Bombay are not in sympathy with the opinion expressed at the meeting

3 I am to add that in all countries the sole authority which lays down the conditions constituting qualification for the legal practice of Medicine and Surgery is the Government, and that after carefully considering the views expressed in your letter and the resolutions accompanying it, the Governor in Council sees no reason to exclude Military Assistant Surgeons and Civil Medical Assistants from the proposed registration of duly qualified medical practitioners

4 The other points touched upon in the resolutions will be duly considered by Government when the proposal to pass a Registration Act comes before them

CELLI ON QUININE PROPHYLAXIS OF MALARIA

In the *Annali d'Igiene Sperimentale* (Vol. XIX, 4) Professor Celli gives his views as to the

relative value of the quinine prophylaxis of malaria

There are two schools of thought or tendencies in Italy—one to render safe and sound the malarious man, and the other to reclaim and drain moist and waste land. Government holds a neutral attitude (we quote from *The Manila Bulletin*, Vol. II, 4) recognising the first as paramount and the second as useful and necessary

For a fixed population, says Celli, in a malarious district where the epidemic is not severe quinine appears to suffice, if the epidemic is severe it is necessary to resort to more general administration of quinine and to mechanical prophylaxis (screening, etc.) The sale of quinine is controlled by Government and furnished free to the poor and at a minimum price to others. "Quinine," says Celli, "checks the spread of first infections, diminishes the recurrences, renders the fever more mild and curable, makes the pernicious types to disappear, prevents cachexia and except in rare cases of idiosyncrasy it is well tolerated"

He gives on to say that the complete destruction of mosquitoes in a vast territory is not possible with physical, chemical or biological means, and in spite of the persistence of anopheles the eradication of malaria is possible by a system of quinine prophylaxis. He appeals to his countrymen not to be led astray by the reports of success achieved in mosquito destruction in other countries

THE CAUSE OF PELLAGRA

THE *Times* of 14th May contained the announcement that Dr. Sambon and the Pellagra Field Commission had decided that maize is not the cause of pellagra but its parasitic conveyor is the *Simulium reptans*, a species of sandfly widely prevalent in Italy. So far so good, but although this discovery is commented upon in an evidently inspired note by the *Times* yet so far we have seen no proof of the assertion and much more investigation is obviously necessary, which no doubt will soon be forthcoming

Simulium reptans belongs to the family of Simuliidae, or sandflies, and have a wide distribution in tropics and also in Europe. Castellani and Chalmers' (*Tropical Medicine*, p. 542), say that "though small in size, they are great blood-suckers, attacking man and beast, and also other insects, but only the females suck blood." There is only one genus *Simulium* (Latreille 1882), but about seventy species, of which the *S. reptans* and *S. hirtipes* are known in Scotland, *S. indicum* is said to be the damdam fly of Assam and is an irritating insect which attacks tea-garden coolies. The eggs are deposited in running water. It will be interesting to learn the connection between these flies and pellagra. There is another black sucking genus also called popularly sandflies the *Plebotomus* of which the *P. papatasi* are connected with 'three-day fever' (Vide *I. M. G.*, May 1910, p. 182)

THE FASHIONABLE LACTIC ACID TREATMENT

We have been asked several times for information on this new fashionable method—and we will be glad to publish any observations made in India on this treatment which has been widely if not wisely adopted by laymen in India. Meantime we quote the following from our contemporary *The Journal of Practical Dietetics* (Vol II, No 4, March 1910) —

"Within the last few years the advance in bacteriological methods has placed at our disposal a new method of intestinal disinfection, a method which has the advantage of continuous action—viz, the employment of lactic acid bacilli, the natural history of which has been thoroughly worked out by Professor Metchnikoff and his pupils. The treatment is known as lactic bacteriotherapy, and, although at present only in its infancy, it has yielded very promising results.

As far back as 1887, Hayem, of Paris, recommended lactic acid in the treatment of intestinal affections of infective origin, but, as already pointed out, this acid is promptly decomposed into carbonic acid and water, moreover, owing to its causticity, it can only be administered in a very dilute form.

In 1897, Dr Herter, of New York, injected lactic acid directly into the intestine, and found that this was followed by a marked diminution of the ethereal sulphates and indican in the urine.

It should be borne in mind that the proteolytes only develop in an alkaline medium, and remain inert in an acid, or even in a less alkaline, medium. It follows that, under ordinary circumstances, the intestinal *milieu* is distinctly favourable to their multiplication. On the other hand, even the lactic bacillus cannot exist in a *milieu* that is highly laden with its own acid product, and when this limit has been reached it becomes quiescent until such time as the decomposition of the lactic acid then present reduces this standard of acidity, and allows of its further development. It is in this sense that the action of these bacilli can be described as automatic.

Milk that has been curdled by inoculation with *Lactobacillus* constitutes an excellent article of food for febrile patients and in certain forms of dyspepsia. Its pleasantly acid taste flatters the palate, and it tends to prevent flatulence. For therapeutical purposes, however, it is better to make use of the standardized *Lactobacillus* products, the bouillon or the compressed tablets. These are given in conjunction with some sugar containing substance—jams, dates, marmalade, &c,—so that the fermentation may take place and lactic acid elaborated just where it is required—viz, in the intestine. The bacilli become acclimatized in the course of a few days, and the process becomes automatic.

The antiseptic action of lactic acid is not limited to the germs of putrefaction, but extends to many pathogenic germs, as in typhoid fever, dysentery and tropical diarrhoea, as well as in the diarrhoea of infantile enteritis. Residence in the Tropics has been shorn of many of its dangers by the introduction of the lactic treatment, as shown by numerous observations recorded by practitioners in distant colonies, to which reference has been made from time to time."

As Dr Tanner Hewlett (*Lancet*, March 1910) points out, something more is required for the proper preparation of soured milk than merely the use of a suitable ferment. The souring of milk is essentially a bacteriological culture, and certain precautions are indispensable if we wish to produce a palatable, salutary curd. The milk itself must be duly sterilized lest extraneous organisms obtain admission and hinder the development of the lactic germs, and all the vessels employed should be scalded or otherwise purified before being used. Certain precautions are also necessary

during the period of fermentation in order to avoid accidental contamination.

The author points out that Eastern soured milks invariably contain a lactic acid producing streptococcus in addition to the Bulgarian bacillus associated with the name of Massol, and he urges that there is no reason why this streptococcus should not always be utilized in the preparation of soured milk. As a matter of fact, *Lactobacillus* products intended for this purpose (the powder and liquid ferment) are particularly rich in streptococci, because, as Professor Metchnikoff has shown, the Bulgarian bacillus attacks the fatty constituents of the milk and gives a disagreeable taste to the finished product. In products, such as the tablets, intended for internal administration as such, on the other hand, the Bulgarian bacillus predominates almost to the exclusion of the streptococcus. These are technical details that are dealt with by Professor Metchnikoff in his "Remarks on Soured Milk," where he explains that this action of Massol's bacillus on the fats of milk led him to make use of lactic acid producing organisms other than the Bulgarian bacillus in products intended to be utilized for souring milk. But this enforced exclusion from the powder of the Bulgarian bacillus, which fulfils a useful purpose, is an argument in favour of carrying out the treatment by means of the tablets which, if given in association with any sugar containing substance (jam, marmalade, dates, &c.), are very active, and are, on the whole, much more convenient. In this way we are sure of administering the pure mixed culture which remains active almost indefinitely.

The treatment is obviously one to be carried out on medical advice and under medical supervision. Its indications are clear, and the public must be warned against regarding it as a universal panacea. In unsuitable cases, or improperly prepared, it may conceivably determine gastric disturbances which tend to bring a valuable therapeutical method into disrepute.

FOODS SUITABLE FOR DIABETIC PATIENTS

Dr R. T. WILLIAMSON, of Manchester, is a well-known authority on diabetes, and we therefore extract the following notes from a recent paper on his, on the articles of food suitable for diabetic patients.

The chief rules are (Naunyn) —

1. No sugar, or articles containing sugar.
2. Restriction of all foods that contain starch.
3. The deficiency caused by these restrictions to be made up by fat, and not by excess of meat.

The following diet sheet is suitable when a very rigid diet is desirable, but it must be modified according to the nature of the case —

ARTICLES OF FOOD

Sanctioned	Forbidden
Butchers' meat of all kinds (except liver), potted and preserved meats	Sugar, sweet and farinaceous articles of food
Ham, tongue, bacon	Pastries and farinaceous puddings
Poultry, game, venison	Rice, sago, arrowroot, tapioca, macaroni, vermicelli, semolina
Fish (fresh, dried and preserved), sardines, shrimps	
Broths, animal soups, and jellies (prepared without the addition of sugar or starchy materials)	

ARTICLES OF FOOD—(contd)

<i>Sanctioned</i>	<i>Forbidden</i>
Eggs, cheese, cream, butter suet, oils, fats, bone marrow	Potatoes
Custard (without sugar), cocoanut and almond puddings	
Reliable bread substitutes— protene bread, cocoan nut cakes, almond cakes, kalari biscuits, casoid meal bread, cellulon, pro lacto, and casein bread	Wheaten bread and biscuits
Green vegetables—salad, mustard and cress, water cress, endive, lettuce, spinach, turnip tops, cabbage, cauliflower, broccoli, Brussels sprouts, spring onions, turnips, radishes, parsley, French beans, asparagus, vege table marrow, tomatoes, celery, cucumber, mush rooms	Carrots, parsnips, beetroot, beans, peas, large onions, lentils, horse radish
Pickles (cucumber, wal nuts, and onions)	Liver
Nuts (walnuts, almonds, filberts, hazelnuts, Brazil nuts, but not chestnuts)	Oysters, cockles, mussels, the "puddings" of crabs and lobsters
Rhubarb, green goose berries, cranberries.	Honey
Plasmon, sanotogen, soma tose, glidine	
Saccharin and saxon, kins tallose	All sweet fruit and dried fruits (especially grapes, figs, dates, raisins, cur rants, prunes)

BEVERAGES

<i>Sanctioned</i>	<i>Forbidden</i>
Water, soda, lithia, potash, and seltzer water, salutaria water	Port, Tokay, Champagne, and sweet wines
Tea, coffee, fresh lemon juice	Must, fruit juices and syrops
Dry sherry, claret, Bur gundy, Hock, Moselle, Ahr wines, most Rhine wines, Austrian and Hungarian table wines (in moderate quantities), brandy and whisky in small quantities	Sweet lemonade, cider Liqueurs
Sugar free milk, kefir	Beer, ale porter, and stout
	Rum and sweetened gin
	Cocoa and chocolate
	Milk in large quantities
<i>In small quantities—</i> Raspberries, blackberries, bilberries, melons, red currant berries, unripe peaches	
The so called "forbidden fruit," or one orange (if not sweet), may be taken occasionally.	

Bread is usually the greatest difficulty and the following only are recommended by Dr Williamson —

BREAD SUBSTITUTES WHICH ARE PRACTICALLY FREE FROM STARCH AND SATISFACTORY CHEMICALLY

Casein Bread
Short bread Biscuits and Bio bian drops
Casein Biscuits
Biogene Wafers

From Mr Bonthron, 59 Glasshouse St, London, W
Prolacto Bread
Cellulon Bread
Casoid Bread
Cosoid Meal Bread

From Messrs Callard & Co, Regent St, London, W
Protene Bread
Protene Bran Bread
Protene Biscuits

From the Protene Co, 38, Welbeck St., London, W
Plasmon diabetic biscuits (free from starch), from the
Plasmon Co, 56, Duke Street, Grosvenor Square, London.
"Akoll" Biscuits (Huntley and Palmers, Reading),
from Messrs John Mark & Co., St Ann's Square,
Manchester

Dr Williamson adds the following warning in italics —

"Patients should remember that a large proportion of the diabetic breads which are most popular, and taste almost the same as ordinary bread, are full of starch and practically useless. No kind of bread should be used by a diabetic patient unless it has been tested by his medical attendant with the iodine solution already mentioned"

He goes on to say —

"The fat of beef and mutton is very suitable. Many patients can take best the fat of cold roasted beef, mutton, and ham, and large quantities of fatty food can be taken in this form. Bone marrow, which consist almost entirely of fatty material, may be used in the preparation of soup, or it may be eaten mixed with potted meat. The following is a most suitable form of preparation —

4 ozs of bone marrow, 4 ozs of shin of beef. Cut up the beef and marrow into small pieces, place in a jar, cover with water, stew gently in a slow oven for 2 hours or more until both are quite soft. Take out the beef and marrow, leaving the fluid in the jar. Pound the beef and marrow in a separate vessel, until they are mashed up into a smooth paste (as in the preparation of potted beef). Then add the fluid from the first jar, a little salt and pepper, and mix all well together into a paste. Place in a shrimp pot and allow to go cold.

This is a most suitable form of fatty and nitrogenous food for diabetic patients.

Fatty bacon, the yolk of eggs, cream, cheese, butter, custard, suet, and various oils, cakes, puddings, porridge, and gruel made from ground almonds or cocoanut powder, are of much value on account of the large amount of fat they contain.

As already mentioned—goose, duck, salmon, mackerel, herring and tongue contain a large percentage of fat. In the cooking of fowl or meat, the addition of bacon or other fatty food is useful.

Fresh cream and clotted cream can be well taken with suitable fruit (see p 4), or added to milk (5—15 ozs of fresh cream may be taken daily).

Oils, butter and other fats should be used largely in the preparation of salad and vegetables, and suet and the yolk of eggs in the preparation of puddings.

If the fatty food should cause indigestion, a little soda water or a teaspoonful of brandy, after the meal, aids the digestion."

VEGETABLES.

"Boiled walnuts may be used as a substitute for potatoes. Place the walnuts (the shells having been removed) in boiling water and continue to boil for 30 minutes, then drain away the water carefully, place on a plate and sprinkle well with aleuronat flour or glidine. Add salt, a little pepper and butter, if preferred. (The pan used should be enamelled, as an iron pan turns the colour of the nuts black)."

FRUITS

"Stewed cranberries, green gooseberries, rhubarb and raspberries, are the most suitable form of fruit for dinner. They may be sweetened with saccharine and eaten with plenty of custard, cream, or clotted cream.

The fruit which is known as "forbidden" fruit, which resembles an orange in shape, but is larger and paler, contains very little sugar, and is suitable for diabetic patients two or three times a week.

Ripe peaches contain 9.5 per cent of carbohydrates, but after boiling in water for a short time most of the carbohydrates are extracted. When the water is poured away the fruit contains only 1.8 per cent of carbohydrates (von Noorden). Peaches, especially unripe peaches, are suitable for diabetic patients, when prepared in this way. They should be boiled for 5 or 10 minutes in water. The water is poured away and the peaches placed in a little cold water."

"The following articles of food are of great nutritive value and are particularly suitable for most diabetic patients (on account of their high equivalent in calories)—Vegetable oils, bone marrow, butter, bacon, Devonshire cream, cheese, especially cream cheese, ham and tongue, fatty pork, beef, mutton and goose, cream, eggs, especially the yolk, salmon."

THE USES OF ANTIGONOCOCCIC SERUM

It is well known that the hitherto practically incurable case of gonorrhoeal arthritis have been of late successfully treated by the use of antigonococcic serum, and we extract the following conclusions from a useful article by Dr T. C. Stellwagen, of Philadelphia, on this subject—(*Therapeutic Gazette*, April)

"1. Acute and chronic Urethritis do not yield to serum treatment, but the use of the serum renders the patient more readily amenable to local treatment.

2. Prostatitis is frequently benefited by the use of the serum.

3. Epididymitis has often been cured by its administration.

4. In gonorrhoeal arthritis the antigonococcic serum has proved to be practically a specific.

5. In all gonorrhoeal complications, we believe the serum is indicated.

6. We have found the daily administration of two to four cubic centimetres of serum gives most satisfactory results.

THE PRACTITIONER'S SPECIAL NUMBER

The May number of *The Practitioner* is a special one and on the eminently practical subject constipation. We cannot attempt to do more than indicate the contents of the most useful and practical issue of our ever up-to-date contemporary.

All aspects of the subject are treated, constipation in women and children, in infants, in adults habitual constipation, diet in constipation, use of drugs, "agar-agar treatment," the "sour milk treatment of constipation," the spa treatment, the operative treatment, mechanical therapeutics, etc., etc., even the use of the X-rays in constipation is discussed.

Perhaps the two most useful articles out of many that are good are that, in diet and constipation by Dr E. I. Spuggs and on drugs in constipation by Dr Camac Wilkinson.

We may extract a little from Dr Camac Wilkinson's practical article.

Mild cases of habitual constipation may be relieved by simply taking an apple before breakfast or an orange after dinner.

The following is a list of articles of food which contain gentle laxative substances with a fair proportion of stimulating cellulose—

Grapes, apples, pears, oranges, figs, dates, prunes, raspberries, strawberries, and thin jams.

Marmalade, honey treacle, sugar of milk, also soups made from tomato, potato or watercress.

If after a fair trial the use of the above is not successful, then order the following foods which have a bulky residue, mainly of cellulose which will stimulate the intestinal movements. Whole meal bread, gingerbread, porridge, cabbage, French beans, spinach, turnip tops, onions, carrots and asparagus. The following foods which are concentrated have very little residue in proportion to their food value should form only a small part of the diet—viz, meat, game, eggs, milk and cheese, and nuts.

The whole special number of the *Practitioner* for May 1910 is worth reading.

THE CHINA MEDICAL JOURNAL.

The *China Medical Journal* (May, 1910) has several articles of special interest.

In the first place, we have the final report of the Research Committee on the prevalence of intestinal parasites. The *Ascaris lumbricoides* is known to be ubiquitous, and is extremely common in China as it also in India, and especially among Ghorkhas. The *Oxyuris* is not apparently so common in China as the *Ascaris*, but nevertheless it is often recognised. *Tricocephalus Trichuris* (T. dispar) was found in 40 per cent of 1050 cases examined. Its pathological rôle is not yet determined. The ankylostomum is very widely distributed but this wide prevalence has only recently been known, but though the infection is common the anaemia which constitutes what is called ankylostomiasis is rare. This is, however, the same experience as that in India where Dobson found some 70 or 80 per cent. of selected tea garden coolies who had passed a medical examination as "healthy," nevertheless harboured this worm. We have often pointed out the very different state of affairs in the West Indies and America where "hookworm disease" is said to be very serious. Another point of interest is that there is a consensus of opinion against the presence of "ground itch" in China. This is certainly strange.

The observations on Cestodes are not completed. A few cases of *T. echinococcus* were

reported, but there is a strong impression that hydated disease was quite absent from China

Of the Trematodes, *fasciolopsis Buski* is recognised, and there are probably several varieties *Clonorchis Sinensis* is endemic in Korea, the question of the two varieties, one bad, the other harmless, is still *sub judice*.

The *Schistosomum Japonicum* is widespread and in some districts is a veritable scourge, "which at present we have no means of combating"

Dr E H Hume writes of fevers in Central China, and apparently is of the opinion of Krauss, who said "some continued fevers are typhoid, some malaria, and a few something else, I am opposed to the idea of an 'X' fever"

Dr J A Thomson, of Hankow, has a good article on continuous intravenous saline transfusion in the treatment of cholera (a method attributed to Dr Cox) "To anticipate collapse and to continue the treatment as long as the patient can stand it," are the golden rule He is very enthusiastic about the value of Dr Cox's method and apparatus

Dr J Howard Montgomery has a useful practical article on Spue, and well describes the various phases of this insidious disease He discusses the three dietetic treatments, by milk, meat and by fruit Milk is to be first tried, if fresh milk is procurable If milk fail or is not available then try meat, 6 meals daily 7 A.M., 10 A.M., 1, 4, 7 and 10 P.M., 4 ounces at each meal, or 24 ounces of cooked meat, roughly equivalent to 2lb raw meat Beef and mutton are preferable It must be slowly and lightly cooked Before each meal a few ounces of warm water, rice water or toast water, but no bread or toast with the meat After some eight days of rigorous treatment, a couple of lightly boiled eggs and water or a bit of fish may be tried, and when improvement is marked, add oranges, ripe grapes or bananas If in advanced cases meat is not well borne, raw meat juice or Valentine's beef juice or Brand's jelly are recommended Dr Montgomery has little experience of the fruit diet which many extol He has also a useful note on drugs, especially those which are harmful in spue, especially bismuth and the mineral acids also catechu, kino, tannin and its various fashionable derivatives Iron and arsenic too are to be avoided If an emetic is needed use ipecacuanha (20 grains) Santonin (after exposure to the sun's rays) was once fashionable, but is now less used Argilla, a fine white clay is used in Europe, 3 to 6 ozs with 10 oz of water, taken at intervals throughout the day and no food for 3 hours after this clay mixture has been swallowed It is remarkably useful in controlling diarrhoea, *eg*, cholera infantum, in half ounce doses, it is well worth a trial in, say "hill diarrhoea"

Of course, Savelin, a lactic acid product, has been recently tried

An editorial article discussed the political outlook in China, which is "anything but promising"

With reference to the paper in our April issue by Dr B B Basu on the therapeutics of *Banhaavia Difusa*, our attention has been called to a paper on the same plant by Babu Lal Mohan Ghosal of the Physiological Department of the Medical College, Calcutta, which paper received the Chandia Prize Babu L M Ghosal says, "the plant is extensively used for food purposes, specially by the Bengali" The paper contains certain physiological experiments and clinical experiences, made under auspices of Colonel G A Harris, F.R.C.P., I.M.S., at the College Hospital It is concluded that the active principle is a diuretic and raises the blood pressure Its use is probably no more extensive than many other drugs already recognised officially

THE banana or plantain is known to be a nutritious fruit, but the following analyses show that it is a perfect reservoir of energy —

Water	74.60	per cent
Ash	0.86	"
Fatty matter	0.55	"
Hydro carbons	22.55	"
Albumenoids	1.44	"
Cellulose	0.87	"

The albumenoids may be as much as 2 per cent The composition of the green, not yet ripe, banana differs, it is given by Balland as follows —

Water	13.50	per cent
Albumenoids	3.08	"
Fatty matter	0.30	"
Sugar	(traces)	"
Extractives (starch)	80.87	per cent
Cellulose	0.65	"
Ash	1.60	"

In the dried fruit sugar has replaced the starch This sugar is chiefly in the form of glucose The nutritive value of the fresh banana is said to be 100 calories per 100 grammes, and that of the dried banana no less than 100 to 285 calories

Banana flour is highly nutritious, but its composition differs according as it is made from green or more ripe fruit It is a pity that the taste of banana flour is not altogether agreeable, this is said to be because the flour is made from the green fruit and the odoriferous ethers have not been formed and the starch is not yet converted into sugar

IN San Francisco special measures are directed against squirrels, which seem to be as bad as rats in disseminating plague, attempts have been made to poison squirrels on a large scale by means of bisulphide of carbon and by use of poisoned

grain. So far out of 46,000 squirrels examined 331 have been found infected

PALTAUF has had an interesting article (in *Wern Klin Wochenschrift*, xxi, 1023), on rabies. He points out that the incubation period is unique in extremes, it may be 14 days or more, usually 8 to 12 weeks, and cases of 12 to 38 months have been reported on good authority. It appears that rabies develops in under 10 per cent of persons bitten by rabid dogs, who have not received prophylactic treatment, but if developed, there is no well authenticated report of recovery. The death-rate then of the developed disease is 100 per cent.

The virulence of the virus is a great factor in deciding whether it can be overcome or not, it is known that the bites of rabid wolves and in India jackals are much more fatal than those of dogs.

MR D HOOPER, FIC, has joined Capt Greig, IMS, in the beri-beri investigation in Calcutta, and is taking up the question of the chemical composition of the 'polished' and the roughly prepared rices.

MANY of our readers will be glad to hear that a second revised edition of Major L Rogers' *Fevers in the Tropics* is out, with an addendum on the work done in tropical diseases in the past two years.

OWING to the amount of material in hand we have increased the present issue of the *Indian Medical Gazette* from 80 to 100 columns.

Reviews

Prophylaxis of Malaria in India.—By Lt Col P HEHIR, IMS, MD, FRCP, FRCS, DPH, Allahabad, 1910 Pioneer Press.

LT-COLONEL HEHIR is known well as a writer on many medical subjects in India, his book on *Indian Hygiene* is well known and his *Outlines of Medical Jurisprudence for India* is one of the best on the subject.

The subject of malaria in India and its prevention has been much before us during the past year, and the assembly of the *Malaria Conference* at Simla under the auspices of H E the Viceroy is an augury for increased attention to this important subject.

Except some excellent little manuals by Major S P James, IMS, we have had no complete treatise on malaria in India for a long time past, hence we welcome Lt-Col Hehir's volume, though it deals with the subject mainly from the side of preventive medicine.

We have read this book with pleasure and with profit. It contains a very complete account of modern work on malaria on all sides except the clinical with which it is not concerned. After a few pages devoted to the history of malaria our author attacks the epidemiological problems and discusses the economic importance of the question and quotes the well-known instances of successful localised anti-malarial campaigns. He very rightly points out the same amount of concentrated energy and capital could not be employed all over the one and three-quarter million square miles of India. All we can hope for is to "considerably reduce malaria in the more endemic foci in India." Some statistical tables are then given of the incidence of malaria in regiments and among prisoners, and Rogers' useful table of the comparative monthly incidence of the different forms of malarial fever in India is reproduced from the "*Fevers in the Tropics*."

The same chapter goes on to discuss the relation of malaria to marshes, *ghats*, tanks, ravines, irrigation canals, irrigated lands, rice cultivation (wet cultivation comes on for severe stricture as the cause of an enormous amount of malaria). The rôle of man himself in the distribution of malaria is not overlooked and the standard paper on this subject by Christophers and Bentley is made use of. We note that the effect of railways is stated to have been to aggravate malaria, whereas at the Simla Conference, L Rogers claimed that this did not apply at any rate to the railways in the Hughli District of Bengal, but no one can doubt that the aggregation of coolies in railway construction must increase malaria and the succession of borrow pits which extend for thousands of miles along every railway embankment seem ideally arranged for the distribution of malarial mosquitoes. There is no excuse for these borrow pits being left in their present condition. Road-making is just as bad and no attempt is made to connect the various borrow pits and so allow water to drain off. The formation of such borrow pits has been declared illegal in the Canal Zone at Panama.

Lt-Col Hehir next discusses various malarial theories and gives a full account of malarial mosquitoes, making use of the standard works of Giles, James and Liston, and of Theobald on this subject. The next chapter deals with the malarial parasites and the methods of examining them.

Part II deals with the effects of malaria on man and touches upon the clinical side of the question. Good accounts are given of pathogenesis, of relapses and reinfections, latent malaria and of malarial cachexia and the supposed relations of malaria to other diseases. The third part of the volume is excellent and gives a very full account of modern work. There is a lot of useful information in the twenty pages devoted to quinine in malaria,

and this is a subject on which we still have much to learn. Other points of prophylaxis discussed are segregation of the healthy, isolation of the infected, protection against adult mosquitoes, destruction of breeding grounds, and extermination of larvae the dangers of cisterns, small tanks, etc., etc. Cultivation and arboriculture, laivicides, prophylaxis in towns, in villages, free issue of quinine in schools, prophylaxis in cantonments, in prisons, and among gangs of labourers are among the subjects next discussed.

An excellent chapter is devoted to prophylaxis in the individual, etc.

We commend this book to our readers. They will find the big subject of malaria well discussed and with a full acquaintance of the latest work on the subject. It is extremely useful to have the subject of malaria in India discussed in such reasonable compass as within the 300 pages of this excellent volume. We congratulate Lt-Col Helm on its production.

Manual of Tropical Medicine—By ALDO CASTELLANI and A. J. CHALMERS, of the Ceylon Medical College. London: Baillière, Tindall and Cox University Series, pp 1242, with 373 + 14 Illustrations. One volume. Price 21s net.

At the present day the student of tropical medicine is at no loss for text-books on the subject, rather the danger will soon be that there are too many.

The volume at present before us by Dr Castellani and Dr Chalmers, of the Ceylon Medical School, is a monument of industry and care. It is a bulky volume of some 1,242 pages, and absolutely criss-crossed full of interesting matter from first page to last. Our first feeling on reading this volume was one of thankfulness that we had passed our medical student days and could not be examined in the mass of material which constitutes this book.

Dr Castellani's name is well-known, not only for his work on sleeping sickness, but for much good work done since the opening of the clinique for tropical diseases in Colombo, and his colleague is Dr Albert J Chalmers, the lecturer in pathology and animal parasitology in the Ceylon Medical College.

The first 84 pages are introductory and give very interesting accounts of the history of tropical medicine, of tropical climatology, the effects of tropical climates on man and the incidence of disease in the tropics. That on climate including winds, rain, barometric pressure, humidity, etc., is excellent and gives much information not easily obtainable elsewhere.

The remarks on the production and regulation of heat in man give a resume of the little that is known on the subject and the old observations of the late Dr A. Combe, F.R.S., are quoted as well as Captain D. McCay's recent observations on metabolism in Bengalis. The second part of the book is on the causation of

disease in the tropics and over 540 pages are devoted to a very complete account of tropical intoxications, inorganic poisons and poisonous plants, as well as such intoxications as lathyrism, lolism, etc., and a chapter is given up to venomous animals, not only snakes, but also scorpions, spiders, ticks, lice, bees and wasps, ants, caterpillars of many butterflies, flies and mosquitoes. Venomous fishes have a whole chapter to themselves. The account of "ophidism" or snake poisoning is up-to-date, but we note that the name of the late Dr Vincent Richards (one of the "landmarks in snake-poison literature"), is wrongly printed as "Edwards". The authors mention the use of the permanganate for washing or thoroughly soaking the wound (3 per cent solution), and a fair account is given the use of the various serums. Chapter XI on animal parasites commences the important second portion of the work and the next dozen chapters form in themselves a veritable monograph on animal parasitology. Indeed we have little hesitation in saying that this is the best part of the book, and the student who carefully studies the 430 pages on this big subject will know as much as anyone, but the absolute expert can be expected to know. The following order of parasites are detailed, protozoa, sarcodina, mastigophora, binocleata, telosporidia, neosporidia, heterokaryota, metazoan parasites and tiematoda, cestodea, nemathelminthes, annulata and arthropoda, hexapoda, siphunculata, and hemiptera, diptera including culicidae and allied families siphonaptera, coleoptera, rodentia and vegetable parasites.

As we have said, the biological portion is the grand feature of the book. The clinical portion begins at page 631 with an excellent account of malaria. It is difficult to pick out any chapter which is better than another, but perhaps the sections on the relapsing fevers, dengue and undulant fever deserve special mention. We note that after "Indian Kala-Azar" there is a disease described which our authors call *infantile* Kala-Azar, or febrile splenic anaemia—this disease being well-known in Italy. Pianese, in 1905 described parasites morphologically identical with the Leishman-Donovan bodies. A chapter on sleeping sickness from Dr Castellani is expected to be good. We note that the discovery of the enlargement of the glands in the posterior triangle of the neck is attributed to Winterbottom. The chapter on unclassified fevers is very useful and up to date, and the analogies between McCarrison's (not McG as printed) Three-day Chittal fever and the Three-day Pappatasi fever of Malta are noted. Castellani also describes a low intermittent non-malarial fever in Ceylon, similar to one described by Murray in Siam, and it is almost certain that similar fever is found in India. The chapter on the flariases is certainly good and the authors go strongly

for the theory that though secondary bacterial infections may assist the development of the disease yet the main cause of elephantiasis in the tropics is the *filaria bancrofti*. A very encouraging pair of photographs are given at page 830, showing the appearances before and after the treatment of a big elephantoid leg with fibriolysin and bandaging—the details of which treatment are given. The chapter on the dysenteries is somewhat bewildering as is also their protean nature, but a good attempt has been made to separate and differentiate the various types according to causation. We note that next to the serum treatment which is recommended in large doses for bacillary dysentery, the saline treatment is said to be “the most useful.” In chronic cases “the vaccine treatment first introduced by Castellani and Greig” is recommended, and Foister’s treatment is mentioned with favour. Under the head of “Entamoebic” abscess of the liver is described, and L Rogers’ treatment of the “presuppurative” stage with ipecacuanha is mentioned. The account given of cholera is excellent as regards history and the treatment. Rogers’ and Megaw’s excellent work on the blood pressure in cholera is referred to, as is also the use of the saline solution as advocated in these columns by Rogers and Mackelvie.

Enough has been said to indicate to our readers the very comprehensive nature of this the latest volume on diseases of the tropics. We have read it with pleasure and profit, and have found it reliable and up-to-date. The sections devoted to biology are the most complete and in the clinical sections most attention is paid to methods of treatment.

We can cordially recommend this volume. Its price is moderate, it is extremely well illustrated and it will be found most useful to the practitioner and worker in the tropics. It is a credit to the Ceylon Medical College.

The Stomach, Intestines and Pancreas.—By W. C. BOSANQUET, M.D., F.R.C.P., H. S. CLOGG, F.R.C.S. Edited by JAMES CANTLIE, F.R.C.S. John Bale, Sons, and Danielson, Ltd, 1909. Price 12s 6d net.

THIS book is intended for both physicians and surgeons. It bears out the general idea of the Editor that “the dividing line between their respective provinces is everywhere purely arbitrary, and in no department is there ready co-operation more necessary than in that of diseases of the digestive tract.” It is printed in a clean large type and the book is not a large one.

The various diseases are briefly discussed and the views on them are dogmatic—the size of the work does not permit of a full discussion. This is one of the points of the book that one is not wearied with an elaboration of theories.

The anatomy of the parts is fairly fully dealt with in Section I. Section III deals with the diseases of the intestine. The part dealing with

chronic intussusception of the bowel is, if very short, very practical. This condition gives rises to many errors in diagnosis and the practitioner is put on his guard.

Appendicitis is dealt with in a practical manner. The part dealing with intestinal junction is certainly not too elaborate—the various methods of suture are not discussed.

The book will be as useful one for the general practitioner and the concise method of dealing with the subject should be appreciated.

The Optic Nerve and the Accessory Sinuses of the Nose: a Contribution to the Study of Canalicular Neuritis and Atrophy of the Optic Nerve of Nasal Origin.—By Professor A. ONODI, Budapest. Translated by J. LUCKHOFF, M.D. (Edin), Ch.B. (Capetown). London: Messrs. Baillière, Tindall & Cox, 1910. Crown 8vo, pp 101 50 Illustrations 10s 6d net.

PROFESSOR ONODI published his book in German in 1906. This authorised translation contains 23 more illustrations and includes the subject-matter of addresses delivered in Vienna in 1908 and in New York in 1909. There are few branches of anatomy, pathology in which our knowledge has advanced so much in the last ten years as nasal accessory sinus disease, and a very large share in that advance is due to Prof Onodi’s researches. A rhinologist himself, his work has been a great value to the ophthalmologist. He has proved the frequent and intimate relationship of the optic nerves to the posterior ethmoidal cells and the illustrations in this work shows those relationships most beautifully. Indeed the book is a work having for the plates alone, though the text is excellent and most lucid. Treatment is dealt with in a general way only as Prof Onodi has gone into that in detail in his book on the subject, a translation of which would be very welcome. The translator is to be congratulated on his rendering and the publishers on their fine production of the work.

Rhinology. Text-book of Diseases of the Nose and the Nasal Accessory Sinuses.—By PATRICK WATSON WILLIAMS, M.D. (Lond), Lecturer on Diseases of the Nose and Throat at the University of Bristol, &c. London: Longmans, Green and Co, 1910. Pp 273, with 146 Illustrations in the text and 47 stereoscopic plates.

DR WATSON WILLIAMS is to be congratulated on the publication of what we have no hesitation in describing as the best text-book there is on rhinology. The text is clear and admirably concise, the illustrations are very good and the large series of beautiful stereoscopic plates makes simple the anatomy and pathology of the nose and its accessory sinuses and the several operations required in treatment of disease of those parts. The portable stereoscope supplied with the book is very convenient. The work is up-to-date in every respect and numerous plates of Zuckerkandl’s and Onodi’s are made use of to show the accessory sinuses

and their relations to one another and to the orbital structures which makes disease of them so important. The work can be strongly recommended to all studying diseases of the nose.

Manual of Medical Jurisprudence, Toxicology and Public Health—By W G AIRCHISON ROBERTSON, M.D. Second Edition. 39 Illustrations. Edinburgh. John Currie, 1910. Price 8s net.

THIS is an admirable little volume, published by John Currie, of Edinburgh, who have published several other useful books for students.

The first edition of this book only appeared in May 1908, and a second edition was soon called for. The book is, of course, intended for students only and certainly contains enough to make any student who thoroughly studied it, pass any ordinary examination in medical jurisprudence, toxicology or public health. It will not be expected that in a handy volume of 560 pages, that these subjects shall be treated of exhaustively, but we have been impressed with the amount that has been put into this book, and we think it can certainly be recommended to medical students. The 16 chapters on medical jurisprudence are very good, perhaps chapter III on examination of the dead is one of the best, it omits little that is of value, for example, it mentions what bigger volumes omit, that the formation of adipocere is much more rapid in warm climates than in cold countries. The chapter on pregnancy in relation to legal medicine is good and the section on insanity and its legal aspects contains a vast amount of information in a few pages.

The chapters on toxicology are brief but good, on the whole, especially the sections on *arsenic* and *antimony*.

Section III consists of about 200 pages and really is wonderfully complete up to date, for example, a clear if short account of recent work on septic tanks is given and the chapter on infectious diseases is a model of compression with information.

On the whole we can cordially recommend this as the most reliable book of its size, intended for students that we know of dealing with these subjects.

Contributions to Abdominal Surgery—By the late H L BARNARD, M.S., F.R.C.S., Surgeon to the London Hospital. Edited by JAMES SHERRIN, F.R.C.S., Surgeon to the London Hospital, etc. With numerous Illustrations. Publishers Edward Arnold, 1910. Price 15s net.

THIS is a posthumous publication, and is a most suitable memorial to Barnard, whose untimely death was an undoubted loss to Surgery. The greater part of the book deals with the subject of Intestinal Obstruction, which is of perennial interest to every surgeon. Much of this had not been published before. It also includes 'A Lecture on Gastric Surgery,' 'Three Lectures on Acute Appendicitis' and

chapters on the 'Surgical Aspects of Subphrenic Abscess' and 'The Simulation of Acute Peritonitis by Pleuro-Pneumonic Diseases.'

The book contains much original work, and every surgeon will find in it theories and facts of the greatest interest. The chapters on Intestinal Obstruction particularly are full of a mass of important facts, illustrating the enormous amount of labour which it must have cost its author. The last part of the book on Subphrenic Abscess represents the latest work done by Barnard, and we have here a clear and original account of a most difficult subject.

We owe a debt of gratitude to the Editor and Committee who are responsible for the selection and compilation of the various parts of the work, for they have succeeded not only in perpetuating Barnard's memory, but also in presenting to the surgical world much which might otherwise have been lost sight of.

Diseases of the Colon and their Surgical Treatment—By P LOCKHART MUMMEY, F.R.C.S., England. Published by John Wright and Sons, Ltd., Bristol.

THE volume before us is founded on the Jacksonian Prize Essay for 1909, and has thereby its imprimatur. It is a monograph, but, whereas writers of monographs usually suffer from a fatal facility for diffuseness and bulky productions, the author has by a self-restraint, commendable and for the most part judicious, brought out a volume which will appeal to the busy practitioner who can afford neither money nor time for such ponderous tomes as Nothnagel's excellent, if discursive, work on the bowels.

Nevertheless restraint may go too far, and we regret the sketchiness of the passages on development and the diagrammatic representations thereof. Books, such as Howard Kelly's on the appendix have given the modern reader a distaste for dead diagrams, have taught him to appreciate the live work of patient investigators like Max Biodel, who are skilled artists and able as it were to make things grow beneath the reader's eye. It is not too much to demand that the development of the colon should have been elucidated. How else is the possibility of a volvulus of the caecum, of the whole bowel, to be clear?

The chapter on Methods of Diagnosis is practically an apotheosis of the sigmoidoscope as a tool of precision. "Base conclusions upon facts rather than symptoms" is excellent advice, but one is tempted to ask whether many symptoms are not grievous facts, and, when one learns through insistence ad nauseam that Mr. Mummery sees facts mostly through the sphigmoidoscope, one must rebel. We welcome any means of accurate diagnosis, but we must protest against the bias which would make a tube for peeping up at most two feet of the lower bowel the chief means to diagnostic conclusions. Many facts hidden

while an outbreak of yellow fever was in existence. From its records it is known that Barbadoes was constantly infected at one period for 40 consecutive years, but the last epidemic was in 1881. It was introduced again in November 1907 at Bridge-town and before it disappeared in 1909 over 100 cases had occurred. It was therefore a very petty epidemic.

The disease broke out or was recognised when three seamen on a British man-of-war were attacked in November, but there were almost certainly unrecognised cases. The *Stegomyia* mosquitoes existed in abundance, but it was not till a considerable number of them got infected from mild and unrecognised cases of the fever that the disease burst out "as a bolt from the blue" as was said. This merely means that the number of infected *stegomyia* reached what Col Goigas of Panama calls the "yellow fever point."

An instructive part of this chapter is the account given of the hesitation shown by many people in recognising or rather admitting the existence of this formidable disease, and the number of fancy names it was given "gastric influenza," "Weill's disease," "Dengue," &c, and this too in spite of the characteristic "black vomit." Such differences of opinion will always exist, but fortunately it is rare to see the public press of a city behave so viciously as did a portion of the public press of Barbadoes in hounding down the medical man who told the truth about the existence of the epidemic.

We have not space to refer to all the matters of interest dealt with in this book. It is full of interest for the administrator as well as for the sanitarian and we cordially recommend it to our readers. It is suggestive and helpful and certainly it does show the extent to which India lags behind the West Indies. It is not creditable to the educated communities in India that they are so far from taking an intelligent interest in matters of public health of such vital importance to themselves, their families and their neighbours.

Correspondence

SURGICAL OPERATION RETURNS

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—In your June issue comment is invited upon the question of some reform being necessary in the method of compiling the Annual Medical Reports of the various provinces, and in a letter upon which your suggestion for discussion is based several propositions are brought forward. I do not suppose it can be disputed that the man who turns to any annual report in order to refresh his professional knowledge will very speedily turn away disappointed but after all, the annual report is essentially an administrative report, a summary by the local head of the department to his chief of the progress or otherwise of the affairs of the department with which he has been entrusted, and as it is not primarily intended to be a professional paper, technical details would be out of place and confusing. I imagine it was largely to avoid the confusing of the man

issue that the length of the annual report has been cut down to such strict and meagre limits.

Illustrations of the work done must be such as will be readily understood and appreciated by the powers most concerned, who are mostly non-medical men. One such illustration is ready to hand in surgical statistics. It is unfortunately true that these statistics often do not deserve the high credit that a layman is apt to assign to them and the exaggeration of their import may lead (in the stress of the professional race) to a certain amount of undervaluation and misrepresentation. It is also possible that this danger could be better guarded against than it at present is, but after all, the main safeguard always lies in the personal ability of the Inspector General. It is his business to satisfy himself by personal inspection that "reports" from his subordinate officers are substantially true, and it ought not to be very difficult to detect any serious discrepancies between the represented and the actual achievements.

The "improvements" in the present system as suggested by your correspondent are to my mind open to serious objections. It appears to me they would encourage the very evils which it is sought to guard against and likely to aggravate rather than diminish them by an open and official recognition of a sort of annual surgical competition in which success is to be estimated very much as in a competitive examination by the number of marks obtained—a system I believe to be theoretically and practically unwise. I do not doubt the aid afforded by a qualified medical man to supervise the returns would be welcomed by the Inspector General responsible, but I doubt if the professional benefits expected would counterbalance the withdrawal even for a few months of a competent man from the active practice of his profession. Since the man so appointed would be criticising the medical work of the whole province, he would not only have to be senior but known as an active and experienced Surgeon. My own opinion is that it would be a mistake to tack on to reports which are primarily administrative, interests of a narrower nature but I fully agree some serious attempts should be made to furnish reports of greater professional interest and utility, and I think such reports should be separate and distinct from administrative reports.

To commence with, the demand of these reports should be limited to the larger and more important Hospitals and I feel sure that a demand of this nature would be in accordance with the wishes of the large majority of the staff of such Hospitals who will readily recognize the great value they themselves will derive from the necessity of having to furnish a careful annual review of their year's work.

Unfortunately, most of the members of a large Hospital staff are already burdened by many duties in addition to their Hospital work, and in order that they should find themselves at the end of the year in a position to give a résumé of the year's work and one sufficiently full and accurate to be of professional interest and utility, it is absolutely necessary the material available should be systematically and intelligently arranged and recorded as it occurs, and for this purpose the appointment of registrars is indispensable. These registrars might be appointed more or less as in English Hospitals from amongst the newly qualified subordinates who have shown most ability during their students' career, and the appointments should carry with them the implied promise of special consideration in the future. Should this be done, I believe there would be little difficulty in each large Hospital putting forth yearly an account of its work in a purely professional report, and should such reports be found a stimulus to careful and progressive work, it ought to be possible to extend their scope to include the smaller Hospitals, at any rate those amongst them who wished to participate, and in this way Provincial Reports of each province would naturally arise, but it is, I believe essential that such attempts should be voluntary and guided by the individuality of the Medical Officers themselves thus being free from the blight which attends professional work which depends for its stimulus upon cut and dried official rules and regulations.

RANGOON
June 1910

Yours, etc.,
C C BARRY,
MAJOR, I.M.S.

[We commend this letter to the attention of our readers. Undoubtedly what is wanted is the compilation and publication of the reports of our big Hospitals. If this was done, the Annual Report to Government could properly deal only with administrative matters.—ED, I.M.G.]

NOTE ON A SIGN OF CHRONIC MALARIAL POISONING

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—Under the above heading, Dr W A Murray calls attention in your last issue to the so called "malarial hand"

The condition is referred to in Scheubus "Diseases of Warm Countries" (Cantle's II Edit, p. 145) where it is pointed out that "Grant" (in your columns, Feb 1898) 'with justice denies its connection with malaria'

My own observation during thirteen years' residence in Assam confirms this. The condition is seen in quite 90 per cent of the Europeans who have lived for some time in this province and is due I believe simply to uterine dilatation—the result of residence in a warm, damp climate

Yours, etc
CHAS D SUTHERLAND,
KALIGHAT, E B & A M B, C M, (Edin)

LITHOTRITY AND LITHOLAPAXY

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—Re Lithotrixy and Litholapaxy, my special point was that at present the same operation is returned by some surgeons under one heading and by some under the other, which is absurd. The operation of Lithotrixy, properly so called is obsolete. Let us get rid of one of the terms, Lithotrixy by all means if that is the general opinion.

MAYMIO

Yours, &c
C DUER

BERI BERI AND RICE

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I was much interested in your special article reviewing the work of Dr Fraser and Dr Stanton on the etiology of Beri Beri, published in the June number.

During my three years' service in Singapore I was in medical charge of a regiment of Madras troops, several cases of Beri Beri occurred among the sepoys, one year (I think it was 1902) I had seventy seven cases out of a strength of 800 men.

Being on Colonial service the sepoys were granted furloughs and were supplied with Siamese rice by the Army Service Corps. Several complaints on behalf of the men were made by native officers about the Siamese rice, they stated that it tasted different from the Indian rice they were used to and that it was not well digested.

The rice was beautifully white and as it was apparently of excellent quality, the officer commanding the A S C refused to substitute Indian rice, putting the complaints of the Madras down to prejudice at not being given their native rice.

The rice theory of Beri Beri formulated by Braddon in 1901 was by no means universally accepted by medical men in Singapore, at the period I was there the theory that it was a "site" disease being more in favour (i.e. that certain sites harboured the specific cause of Beri Beri and if sufferers from that disease were moved to another neighbourhood, they would recover or at any rate improve).

After a certain amount of experience I felt convinced that there was a connection between Beri Beri and rice and as a routine measure on admission to hospital I cut off rice from the diet of my Beri Beri patients who usually rapidly improved on a non rice diet, when convalescent the men were sent on sick leave to their homes in India, and nearly always returned to Singapore recovered the only remaining signs of the disease being diminished, or in a few cases absent knee jerks.

With the exception of Beri Beri the health of the sepoys were good.

Beri Beri is not common among the Malays or Indians of the rice eating classes resident in Singapore probably on account of their eating rice prepared from paddy by primitive methods, the disease on the other hand is very common among the Chinese who eat Siamese rice.

I have had no experience of Beri rice since I joined the Bengal Jail Department, as I have always purchased country rice for the Bhagalpur Central Jail.

I agree with the conclusions arrived at in your special article with regard to the exemption of Bengal Jails from Beri Beri, that it is due to the liberal supply of phosphorus in the dals, wheat and maize, which constitute so large a part of the dietaries of Bengali and Behar prisoners.

An excellent paper on Beri Beri was read at the Bombay Medical Congress by Dr L Braddon, it is published in the Transactions of the Congress, and should be read by all interested in this important disease.

Yours etc
W G HAMILTON,
BAGALPUR, June 1910
CAPT, I M S

SPECIAL SNAKE BITE LANCET

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—The article, and letter on Snake bite and the Permanent use of Potash treatment, in the June Issue of the *Indian Medical Gazette* causes me to write these few lines pertaining to the local treatment and a lancet that I am having manufactured by Messrs Arnold and Sons which I am positive, will be of great help. It is based on the principal of Sir Lauder Brunton's lancet, but has in addition a third chamber which carries 1½ yds of stout silk ligature. The instrument will probably be at most increased in length by only about ½" which would even then not make it inconvenient for the wrist coat pocket. I have, on several occasions, used the Brunton lancet but at one time was very hand capped for a ligature, which led me to have the lancet manufactured with the improvement as mentioned above. I have had the opportunity of treating many cases of snake bite, with the "incision and direct application" method and except in one case where there was a long interval and no ligature had been applied, all were successful. On one case in addition to the local treatment I had to use Anti venine, which was the first time I had had the good fortune of testing the high merits of this excellent serum. The last case I treated was at Singapore, the patient was myself, and the snake my young pet Bungarus Cereuleus. The incision, scarification, and application of the crystals of K M N O was most prompt and thorough and I did not use a ligature. I bled and squeezed the part—my right fore finger—profusely every now and again, and with the exception of a numbing feeling—which may have been due to the bleeding and pain, I was none the worse. Last year while on leave, and out shooting in the Balha District, I chanced to be passing a village one afternoon and noticing an undue amount of excitement I went up to make enquiries. It was a case of snake bite, and as generally happens on such occasions all the old ladies of the community had gathered round the victim but they had not had time to do any thing when the "man of the moment" arrived in the person of the village barber, who I may remark, is the local surgeon to all such communities. He promptly tied a ligature below the knee, another above the ankle—the patient had been bitten on the instep—and with his nail cutting instrument made two or three cross incisions through the punctures, then he proceeded to 'cup' the part with a horn. So far I thought the proceeding very good and on scientific principles, but next he sent for an ordinari used *hoo/a* and taking out from the stern, with the aid of a long steel wire, some clogged up necrotic, proceeded to apply this freely to the eyes under the lids. The patient did not scream!

I was informed that this pain, and burning, caused a sort of counter action effect, in so much as it took the patients thoughts off the snake bite altogether, and was supposed to have a most virtuous effect in staying the circulation of the poison which was removed by the cupping. This form of treatment is, I am told, very common in many villages. I never saw the snake that bit this patient, and the description of the natives was very vague and misleading, but a few days later I went back to the village and saw the patient quite well and happy except for a nasty swelling and ulcer like wound over the instep.

A BAYLEY DECASTRO,
MILITARY ASSISTANT SURGEON
Station Hospital, Lebong

IS THYMOL A PANACEA?

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR—For the last few years thymol has been introduced into the medical science as an antiseptic, and as such it is rapidly gaining ground in the various departments of the science. It is now regarded not only as an antiseptic but as a panacea having several special qualities of its own. Like Belladonna of the Homeopaths, Makardhway of the Kavyas, it is being used in almost all diseases of Medicine, Surgery, Midwifery and Public Health.

In medicine most of the formidable diseases are now combated with thymol. The fever of tuberculosis easily yields to the big doses of thymol. The diarrhoea and fever of the much dreaded Typhoid is soon checked by thymol. In malarial fevers quinine with thymol is sure to check the attacks and subsequently cure the disease. Thymol is now going to be recognised as one of the best remedies for diabetes. Perhaps no one has yet noticed that a grain of thymol in a tumbler of cold sherbat in this hot season keeps the body cool for the whole day. Indigestion and flatulence quickly subsides to a small crystal of thymol after food.

Almost all the varieties of skin diseases quickly disappear by using thymol in the form of ointment or soap or vapor or dusting powder. The severe pain and inflammation of Pharyngitis in all its varieties up to the diphtheritic membrane disappears by the constant use of thymol spray. Thymol is the sheet anchor in ankylostomiasis. There is no other better remedy yet known for the expulsion of the parasite. The carbonate is a powerful Vermifuge and is used against all varieties of intestinal worms. It is a boon to the neuralgics. The bursting pain of toothache or the dull pain of stomatitis and sprue, is easily got rid of and actually cured in a few definite hours by a few gargles of thymol water. The antediluvian chlorate of potash boils, caustic acids, etc., may now safely be expunged from the list of mouth washes and gargles.

In surgery as a lotion, thymol has no equal, as a dressing it is replacing all the time honoured preparations of Mercury, Iodoform and whatnots, as being clean, non-poisonous, fragrant and curative. Boils and carbuncles can be aborted by timely use of thymol poultices. Its action as a local anesthetic is also being recognized. The impetiginous eczema becomes very docile after an application of thymol dusting powder.

In gynecological practices a doctor may not carry anything in his bag except a few crystals of thymol, which serves him from the beginning to the end. To commence with the disinfection of his own hands, to wash the parts of the patient with lotions, to apply thymol and glycerine with a swab, and lastly, to prescribe thymol and something else for taking internally, are all the steps that are required for the cure of ordinary cases.

Some doctors affirm that thymol contracts the uterus, if this is the fact, I do not know what other medicine will be required in a post partum case.

The sanitary and the bacteriological department are claiming thymol as their own. The latrines are to be kept free from smell—a crystal of thymol crushed. A room to be washed after a contagious or a septic case—a lump of thymol in a bucket of water. A sample of urine to be collected for chemical analysis—nothing can be put forward except a grain of thymol in the pan. A gentleman travelling for a long journey in a train with a small baby in the mother's lap, fresh milk impossible on the way—a crystal of thymol boiled with the milk and then bottled there is no trouble or anxiety for the baby for the next 24 hours.

So, after all thymol may be recognised as the Panacea. It is cheap, available everywhere, fragrant, agreeable, pungent to the taste, non-toxic, and non-poisonous. An accidental big dose will not do any harm even to the most delicate health. I do not find any other better medicine which may be used so freely, safely, and in so many phases of medical science. A regular book with illustrative cases may be published in favour of this simple drug. So I fully believe that my brethren will give it a fair trial in any case convenient and a chance for confirming its merit or otherwise.

K P BANERJEE,
ASST SURGEON,
Tumkur

[We were not aware that thymol had so many virtues
Ed.—I M G]

THERAPEUTIC NOTICES

THE Hoffman & Roche Chemical Works, Ltd., send out a small booklet showing the use and value of DIGALEN, a Digitalis preparation which has been favourably reported upon in 116 cases tested in 1909. It is an elegant preparation and is said to be quite equal in effect to any known preparation of Digitalis. It has the reputation of being a reliable, stable and uniform heart stimulant.

WE beg to acknowledge the receipt of a parcel of hermetically sealed Tubes of PURE ETHYL CHLORIDE made by Messrs HFDLEY & Co of London, the contractors to the India Office and to the Crown Agents for the Colonies. It is sold in various sizes, in boxes containing 1 oz 5 cc or 1 oz 3 cc bulbs. This is an admirable preparation of a well known anesthetic, as is known Ethyl Chloride is said to be a stimulant to the heart. As a local anesthetic these bulbs are admirably adapted. The local Agents are Messrs Smith Stanistreet & Co of Calcutta.

DIPHTHERIA "CARRIERS"

THE persistence of the diphtheria bacillus in the throats of apparently quite healthy persons is one of the most difficult problems in connection with the control of that disease.

Some useful notes in this connection may be found in a manual on "Disinfection and Sterilisation" by Dr. J. W. Andriewes, Pathologist of St Bartholomew's Hospital. Dr. Andriewes utters a warning against relying on antitoxin alone

in the treatment of diphtheria. He points out that the antitoxin acts as an antidote to the poison formed by the diphtheria bacillus, but it has little germicidal action upon the bacilli themselves which may continue to flourish in the throat though their evil effects are antagonised. It is, therefore, of essential importance to apply local disinfectants to the seat of the disease. Dr. Andriewes shows that whilst in most cases the diphtheria bacilli vanish from the throat within a week or a fortnight from the time the membrane has disappeared, there are other cases in which they persist much longer. It is generally known that they may be found after cultivation for months after the disease has gone, indeed cases are on record where they were still virulent in their effect upon animals six months after the attack of diphtheria. Dr. Andriewes suggests various measures for the local disinfection of the throat, and amongst suitable gargles and sprays he includes IZAL (1 in 100, or even stronger if the patient can bear it).

Messrs Newton, Chambers & Co, Ltd, who have asked us to draw attention to Dr. Andriewes' remarks state that they do so because they have received a number of enquiries from medical men regarding the use of their Izal for diphtheria carriers and they feel they may with propriety quote an accepted authority in the professional journals. Messrs Newton, Chambers also ask us to draw attention to a report on the value of Izal as a gargle by Dr. Knyvett Gordon, sometime Medical Superintendent of the Monsall Fever Hospital at Manchester, copies of which they will send to medical practitioners on receipt of a postcard addressed to their Laboratories at Thoncliffe, near Sheffield.

Service Notes

THE HONOURS LIST

THE first Honours List of King George V is not specially remarkable for honours to the Medical profession. The new Medical peer is better known as a politician than as a physician, and Dr. Henry Lunn, M.P., who has been knighted, is better known as a sort of improved "Man from Cooks'" and Tourist Agent than as either a divine or a physician, though Sir Henry S. Lunn is both. His unsuccessful attempt to enter Parliament in the Radical interest last January may be remembered.

Turning to India we heartily welcome the C.S.I. to Surgeon General C. P. Lukis, M.D., F.R.C.S., the new head of the Indian Medical Department. Apart from his position as the head of the Indian Medical Service Surgeon General C. P. Lukis' abilities and professional merits had earned such distinction years ago.

We congratulate Colonel R. Macaire, I.M.S., retired, on the parting gift of the C.I.E. which has followed his recent retirement. Surgeon Lt. Colonel Crooke Lawless, V.C., the Viceroy's Surgeon, has been knighted, he got the C.I.E. on a well remembered occasion some years ago. The absence of the name of the organiser of the Bombay Medical Congress is again remarkable.

We are glad to see the title of Rai Bahadur bestowed on Babu K. L. Sanyal, a well known Assistant Surgeon and Civil Surgeon in Eastern Bengal, and also on Babu Charan Singh, a Civil Surgeon of the United Provinces. The title of Rai Sahib falls to Lal Lachman Dass, a senior Assistant Surgeon in the Punjab, and that of Rai Sahib goes to Hari V. Kamat, retired Hospital Assistant in Bombay, and also to Tumbak Chintaman Gokhale of the very efficient Vaccine Depot at Belgaum and the title of Ahmudun Saung Tazekhyr Min on Sub Assistant Surgeon Maung Po Myr in Burma. We are glad to see that Capt. R. McCarrison, I.M.S., Agency Surgeon, Gilgit, has got the gold Kriar and Hind Medal, as also Dr. Ponnell, a Missionary, whose book on the Frontier Tribes is well known.

The Police Department figures largely in the list, but the Jail Department, which equally with the Police has borne the strain of the unrest of the past few years, is only represented by the Kriar and Hind Medal to the energetic and ever obliging Deputy Superintendent of the Alipore Central Jail, Mr. T. Stewart, and by the title of Rai Sahib appropriately bestowed on Lal Kish Ram, the senior Jailer at Lahore.

THE I M S DINNER

WE direct attention to the following report of the out spoken and disturbing speech of the Director General, Surgeon General C. P. Lukis, at the recent Indian Medical Service Dinner at Simla. All are asking what it portends?

"Brother Officers of the Indian Medical Service,—It is with great pleasure that I rise to propose the toast of the evening, that of the good old service to which we are all so proud to belong. It is a service with great traditions behind it, and I am sure that it also has a glorious future ahead."

Nowadays, it is the fashion to say that the palmy days of the Indian Medical Service are past and many of the younger generation are depressed by fears that it will no longer offer a career to men who are really keen on their profession. Gentlemen I have no hesitation whatever in saying that those fears are groundless and after more than a year's experience in my present office I can honestly assure you that it is my firm conviction that the Indian Medical Service will flourish even more vigorously in the future than it has in the past. Changes will undoubtedly come in long, but those changes will, I am convinced, be for the better, and not for the worse, and will place us in a stronger position than we ever occupied before.

But, gentlemen, if the Indian Medical Service is to maintain its great reputation, it is essential that our watchwords should be "unity" and "loyalty", unity amongst ourselves, and loyalty to our colleagues and to our profession. In connection with the first watchword I wish to impress most strongly upon you the fact that we are essentially a Military Service, and that it is as a military service that we must stand or fall. It is therefore with the greatest pain and anxiety that I notice the growing tendency to estrangement between the military and civil branches. When I hear a regimental officer stating that a Civil Surgeon is nothing but a general practitioner, and the latter retorting that the regimental officer has forgotten all he ever knew of his profession when I see a Civil Surgeon declining to use his military title and putting "Dr" So and So on his visiting card, and making a point of dining at mess in mufti and when a selected Lieutenant Colonel tells me he would rather retire than take up an administrative appointment on the military side, I feel that these men are enemies to themselves, and traitors to the Service. I beg of you therefore, to do your utmost to promote esprit de corps and unity amongst the different branches of the Service. To those of you who are in military employ I say, don't run away with the false and foolish idea that you are nobody's children, and that the Director General is an elderly civilian, who takes no interest in your careers, and to those in civil employ my advice is never forget that you are military officers and always bear in mind that the main object with which you are put in charge of Civil Hospitals is that you may become more efficient Surgeons, and therefore be of more use to your country in time of war. You do not go into civil employ, remember, merely to wax fat and build up lucrative private practices.

This brings me to my next point. If we are to justify our existence as a Military Medical Service it can only be by seeming efficiency. Every thinking man must be struck by the marvellous improvement in Military Medical Organisation that has been made by the Sister Service since the Boer War. But, gentlemen, can we say the same of the Indian Medical Service? I fear not. It seems to me that, so far as the military branch is concerned it is very much where it was when I came to India 30 years ago. Wherever I go I find square men in round holes, and I see Lieutenant Colonels in charge of regiments, performing precisely the same duties that they did as Lieutenants and with no greater responsibilities or opportunities of acquiring administrative ability than they had in the days of their youthhood. This, gentlemen, appears to me to be a grave defect, and therefore, as the head of your service and as being chiefly responsible for the selection of officers for promotion to the administrative grade, I have felt it my duty to place my views on this subject before Government, who will, I hope, give them their earnest consideration.

And now I come to my last point—loyalty to the profession and here I wish to advocate the establishment of cordial relations between yourselves and the Executive Officers of the Sister Service. The jealousy which undoubtedly exists in many stations between the R A M C and the I M S is to my mind worse than a crime. It is a mistake there is room in India for us both and there is no reason why the two Services should not work in cordial co-operation for the common good of humanity. When, therefore, I hear of R A M C Officers saying that the I M S are slack and slovenly in the administration of their Hospitals, and the I M S men retorting that the R A M C are more for uniforms and parades than anything else and when I am told of I M S Officers' objections to obvious improvements because they think it is assimilating them to the R A M C, I cannot help feeling what a want of foresight is displayed by this aimless bickering.

I must apologise gentlemen, for having inflicted such a sermon upon you at this festive gathering. Believe me when I say that I only do so after mature consideration, and because I feel most strongly that our future welfare largely depends upon your following the advice I have presumed to give you this evening. Remember that it is only on an occasion like this that the Director General has an opportunity of speaking freely to his officers and even if you disagree with my opinions, credit me with being the honest well wisher of you all.

Gentlemen, I ask you to rise and drink to the long life and prosperity of the Indian Medical Service."

He the Commander in Chief responding for the guests, said that he wished to endorse everything Surgeon General Lukis had said in regard to the I M S being essentially a military service, and that he assured the officers present of the very great interest he took in the service as he did in all other branches of the Indian Army.

Surgeon General Trevor, when responding for the sister service, explained the necessity for union amongst all branches of the medical service, and held up as an example for imitation by Executive Officers the very cordial relations that now exist between the offices of the Director General of the I M S and the P M O with His Majesty's Forces in India.

The following promotions are gazetted —

TO BE COLONELS

Dated 3rd December 1909

Lieutenant Colonel Thomas Granger, M D

Dated 1st March 1910

Lieutenant Colonel George Francis Angelo Harris M D,
I L C I

CAPTAINS TO BE MAJORS, I M S

Dated 28th January 1910

Codfrey Tate M B
Roy Fenton Burd
Andrew Thomas Gage M B
George McPherson, M D
Alfred George Sargent
Walter Hubert Cox, D S O
de Vere Condon M D
Henry Kilpatrick M B
Frederick Duane Sterling Fyler
Padmaraj Krishna Chetale
William Lethbridge, M D
Thomas Hunter M D
Walter Rothney Battye, M B, I L C S
George Hutcheson, M D
William Glen Liston, M D
Harold Boulton M B
Richard William Anthony M F, F R C S
Ernest Frederick Gordon Tucker, M B
George Edward Stewart, M B, F R C S
Frank Stuart Corbett Thompson M B
John William Watson

LIEUTENANTS TO BE CAPTAINS, I M S

Dated 1st September 1909

Harold Hay Thorburn, M B

Dated 4th October 1909

Norman Niel George Cowan McVern, M B
Robert Francis Hebbert
James Smalley M B
William Malcolm Thompson M F
Francis Hugh Salisbury, M F
Friedrich Charles Fraser, M D

Dated 2nd February 1910

Owen Alfred Rowland Berkeley Hill M B
Walter Lidwell Hannott, M B, F R C S
John Drummond Sandes, M B
William Percival Gould Williams, M F
Srinivas Brijmjee Mehta F R C S F
Alexander Harper Napier M B
Gilbert Holroyd, M L
Arnold Egbert Gaisewood M B
David Livingstone Gilman, M F
Phoraya Kharsedji Thaparjee
Roger Brighthouse Nicholson
George Staunton Husband, M B
James Alexander Chinkshank
John Alfred Steele Philips
Dwarkanath Dharmraj Kamat
Enters David Simson, M B

SERVICE NOTES

Aug, 1910]

His late Majesty King Edward VII had approved of the following retirements from the Indian Medical Service —

Dated 3rd December 1909

Colonel Henry Kellock McKay, C B, C I F

Dated 14th December 1909

Lieutenant Colonel Arthur Bown
Lieutenant Colonel Joseph Sykes

Dated 1st January 1910

Lieutenant Colonel William Henry Burke, M B

Dated 10th February 1910

Lieutenant Colonel James Cort Marsden

Dated 1st March 1910

Colonel Roderick Macrae, M B

Dated 29th March 1910

Colonel Robert Davidson Murray, M B

Dated 1st April 1910

Lieutenant Colonel John Anderson, M B
Lieutenant Colonel George Hart Desmond Gimlette, C I F, M B

INDIAN SUBORDINATE MEDICAL DEPARTMENT

Senior Assistant Surgeon and Honorary Captain Septimus George Jackson

Dated 15th February 1910

Senior Assistant Surgeon and Honorary Captain John Gibb

Dated 20th February 1910

KING GEORGE V has approved of the retirement of the following officers —

Lieut Col E P Frenchman, I M S, from 1st April 1910,
Lieut Col S C Squires, I M S, from 6th May 1910, Lieut
Colonels W B Blowning, and D B Spencer, I M S, from
17th May 1910

THE King has approved of the following promotions, etc among officers of the Indian Army, Indian Medical Service and Indian Subordinate Medical Department —

INDIAN ARMY

MAJOR TO BE LIEUTENANT COLONEL

John Charles Campbell Perkins, D S O, Controller of Military Accounts Dated 30th October 1909

LIEUTENANTS TO BE CAPTAINS

Dated 28th March 1910

Reginald Barker De la Motte, 114th Mahrattas Dated 29th March 1910

Arthur Mordant Mills 18th Prince of Wales's Own
Tirah Lancers Dated 30th March 1910

Hugh Richard Augustine Whytehead, 6th Gurkha Rifles
Dated 1st April 1910

Thomas Nisbet, 28th Light Cavalry

Marmaduke Torin Clamer Roberts, 4th Gurkha Rifles
Dated 6th April 1910

Perceval James Gout, 94th Russell's Infantry

INDIAN MEDICAL SERVICE

MAJORS TO BE LIEUTENANT COLONELS

Dated 31st March 1910

Allan James Macnab, F R C S

James Jackson, M B

Henry Smith M B

Charles Neil Campbell Wimberley, M B

Ernest Wickham Hore, M B

Ashton Street, M B, F R C S

John Bland Jameson, M B

William Dunbar Sutherland, M B

Percy Carr White, M B, F R C S F
Edmund Hassell Wright
William Molesworth, M B
Clarence Forbes Fearnside, M B
Charles Arthur Johnson, M B
Gerard Godfray Giffard

LIEUTENANT TO BE CAPTAIN

Dated 1st September 1909

Norman Skinner Simpson

INDIAN SUBORDINATE MEDICAL DEPARTMENT,

SENIOR ASSISTANT SURGEONS AND HONORARY
LIEUTENANTS TO BE SENIOR ASSISTANT SURGEONS
WITH HONORARY RANK OF CAPTAIN

Dated 15th February 1910

Joseph Agnew Reynard Pope, seconded
Charles Bonimco Monisse

THE rules, amended rules, notices and regulations about study leave are now so many that it is very desirable that they should be put together and published in pamphlet form. The continued publication of new or amended rules and notices shows that men do not yet understand them and the publication of the regulations about study leave in a convenient form would save trouble all round. We reproduce herewith another couple of extracts recently circulated.

"Extract paragraph 6 of a Military despatch from the
Right Honourable the Secretary of State for India,
No 1, dated the 7th January 1910 Received the
23rd January 1910

6 It is for consideration whether, when an officer is granted a definite period of study leave and finds after arrival in this country that his course of study will fall short to any considerable extent of the sanctioned period, his absence from India should not be reduced by the excess period of study leave unless he produces the assent of the authorities in India to his taking it as ordinary furlough. I should be glad to have the opinion of your Government on this point.

Extract paragraph 10 of an Army despatch from the
Government of India, No 31, dated the 14th April 1910

10 We agree with Your Lordship that when an officer of the Indian Medical Service is granted a definite period of study leave and finds after arrival in England that his course of study falls short of the sanctioned period, his absence from India should be reduced by the excess period. If the officer wishes to have the balance of the study leave converted into furlough, he should obtain the approval of the authorities in India before applying to the India Office.

Extract paragraph 31 of a Military despatch from the
Right Honourable the Secretary of State for India
No 17, dated the 4th March 1910 Received the
20th March 1910

31 Although the system of granting study leave to officers of the Indian Medical Service has now been in force for six years cases not infrequently occur of officers on leave being found to be ignorant of the rules regarding study leave. It often happens that officers' applications to have part of their leave converted into study leave are not submitted to this office until they have completed their course of study, whereas rule 8 of the Study Leave Rules requires that they should furnish a statement to this office showing how they propose to spend the study leave, i.e. the application should be addressed to this office and approved, before the course of study is undertaken. It is desirable that the attention of Indian Medical Service officers coming to this country on furlough should be drawn to this rule.

It would also be well that officers who have obtained study leave before leaving India should be directed to report to this office immediately on their arrival the date on which they propose to commence study, and at the same time to forward a copy of the programme of study sanctioned in India.

SURGEON GENERAL J G MACNICHOL, A M S, has succeeded Surgeon General Ellis, retired, as P M O, 5th (Lucknow) Division.

THE following I M S officers are appointed specialists in the undermentioned subjects with effect from the date noted against their names —

(d) OPHTHALMOLOGY

Captain W H Hamilton, 2nd (Rawal Pindi) Division
Dated 6th April 1910

Captain P S Mills, 5th (Mhow) Division Dated 4th April 1910

(e) ELECTRICAL SCIENCE

Lieutenant J A Shorten, 2nd (Rawal Pindi) Division
Dated 7th April 1910

(g) OTOTOLOGY, LARYNGOLOGY, AND RHINOLOGY

Lieutenant R E Wright, Burma Division Dated 1st May 1910

(h) MIDWIFERY AND DISEASES OF WOMEN AND CHILDREN

Captain G Tate, 2nd (Rawal Pindi) Division Dated 1st May 1910

DRESS—SIKH OFFICERS INDIAN MEDICAL SERVICE—
With reference to paragraph 2 of India Army Order No 137 of 1910, the Right Hon'ble the Secretary of State for India has approved of the Royal Crest as worn on the field cap by British officers of the Indian Medical Service but slightly larger and in silver, being worn on the head dress of Sikh officers of the Indian Medical Service and by Sikhs undergoing probationary courses at the Royal Army Medical College and the Royal Army Medical Corps Depot in England

This is in continuation of the order quoted by us at page 238 of our June issue

MAJOR C R BAKHALE I M S, is granted privilege leave of absence for six weeks from the date of relief

HIS Excellency the Governor of Bombay in Council is pleased to appoint Captain A F Hamilton, M B, F R C S, I M S, to act as Second Class Civil Surgeon and to do duty as Assistant to the Civil Surgeon Poona, *vice* Captain W M Houston, M B, I M S, proceeded on leave

MAJOR D W SUTHERLAND, I M S, Principal and Professor of Medicine, Medical College, Lahore has been permitted by His Majesty's Secretary of State for India to convert the period from 31st January to 31st March 1910 of the furlough granted to him in Government of India, Home Department Notification No 1186, dated the 24th of September 1909, into study leave

MILITARY ASSISTANT SURGEON H W V COX, officiating Civil Surgeon of Hoshiarpur, is confirmed as a Civil Surgeon, with effect from the afternoon of the 12th of April 1909

CAPTAIN W W JFUDWINE, I M S, District Plague Medical Officer, Gurdaspur, is granted privilege leave for 1 month and 23 days, under articles 250 and 260 of the Civil Service Regulations, with effect from the 1st June 1910, on the subsequent date he may avail himself of it

CAPTAIN W H BOALTH, I M S, Special Plague Medical Officer, Singu Division is posted temporarily for plague duty in the Meiktila Division, in place of Captain Scott, transferred

ON relief by Captain Boalth, Captain H B Scott, I M S, Special Plague Medical Officer, Meiktila Division, is posted temporarily for plague duty in the Pegu Division, in place of Captain W F Byrne, I M S, proceeding on leave

UNDER the provisions of Articles 233 and 316 of the Civil Service Regulations special leave on urgent private affairs for 4 months and 19 days is granted to Lieutenant Colonel K Prasad I M S, Civil Surgeon, Bhamo, with effect from the 6th May 1910 in continuation of the privilege leave granted to him in this Department Notification No 92, dated the 16th March 1910

UNDER the provisions of paragraph 1 of the Resident's Notification No 675 dated the 11th February 1904, Captain C Hudson, D S O, I M S, is appointed a Municipal Commissioner for the Civil and Military Station of Bangalore during the period of his employment as Staff Surgeon, Bangalore, with effect from the date of this notification

THE services of Captain R Coridon, Indian Subordinate Medical Department, are replaced at the disposal of the Principal Medical Officer, His Majesty's Forces in India, with effect from the 13th March 1910

MAJOR J G P MURRAY, I M S, has been granted 21 days extension of the 19 months leave granted him from 26th March 1909

LIEUTENANT R BROWN, I S M D, Civil Surgeon of Dumka, was granted 3 months' privilege leave and Military Assistant Surgeon A R Duckworth acted for him at Dumka

THE services of Captain A F Hamilton, M B, F R C S, I M S, are placed temporarily at the disposal of the Government of Bombay

THE services of Captain H M Mackenzie, M B, I M S, Health Officer of Simla, are placed temporarily at the disposal of the Government of Bengal with effect from the date on which he relinquishes charge of his duties

CAPTAIN E C HODGSON, I M S, is appointed to officiate as Health Officer of Simla during the deputation of Captain H M Mackenzie, M B, I M S

THE services of Captain S B Mehta, F R C S E, I M S, are placed temporarily at the disposal of the Government of the Punjab for employment on plague duty

CAPTAIN F P MACKIE, F R C S, I M S is granted privilege leave for two months and eighteen days combined with special leave on urgent private affairs for three months and twelve days with effect from the 1st December 1909

THE Home Department Notification No 524 Sanitary, dated the 16th March 1910, is hereby cancelled

THE services of 2nd class Assistant Surgeon A P Lopez, Indian Subordinate Medical Department, are replaced at the disposal of the Director General, Indian Medical Service, with effect from the 20th March 1910

MAJOR T W IRVING, I M S (Bombay), an Agency Surgeon of the 2nd class, is granted three months' privilege leave combined with three months' furlough in India, with effect from the 1st May 1910, under Articles 233 and 308 (b) of the Civil Service Regulations

LIEUTENANT COLONEL R C MACWATT, I M S (Bengal), an Agency Surgeon of the 2nd class and Residency Surgeon in the Western States of Rajputana, is appointed to hold charge of the current duties of the office of Civil Surgeon, Bikaner, in addition to his own duties, with effect from the 15th May 1910, and until further orders

LIEUTENANT COLONEL W H B ROBINSON, I M S (Bengal), an Agency Surgeon of the 2nd class, is posted as Residency Surgeon, Jajpur, with effect from the 17th May 1910

THE commission of Lieutenant R H Bhattacha, I M S, will bear date 29th January 1910

MAJOR C E WILLIAMS, I M S, Sanitary Commissioner, Burma, having gone on fifteen months combined leave is succeeded by Major S A Harriss, M B, I M S, who has been Deputy Sanitary Commissioner, U P

CAPTAIN W H F COWAN, I M S, took over civil charge of Multan from Lieutenant Colonel A Coleman on 4th May 1910

MAJOR E V HUGO, I M S, F R C S, sailed from India on furlough on 9th April 1910

LIEUTENANT COLONEL R J S SIMPSON, C M G, R A M C, has a series of very interesting articles in the recent number of the *R A M C Journal* which are too long to abstract but are interesting reading

MISS A M BENSON, M D, First Physician, Pestanj Hospital, Kama Hospital for Women and Children, Bombay, is granted such privilege leave of absence as may be due to her on the 22nd May 1910, or subsequent date of relief, in combination with special leave on urgent private affairs for such period as may bring the combined period of absence up to six months

HIS Excellency the Governor in Council is pleased to appoint Miss K Platt, M B, B S (London), to act as First Physician, Pestanj Hospital for Women and Children, Bombay, during the absence of Miss A M Benson, M D, on leave, or pending further orders

CAPTAIN W M HOUSTON, M B, I M S, is granted, from the date of relief, such privilege leave of absence as may be due to him on that date and nine months' study leave, in combination with furlough for such period as may bring the combined period of absence up to one year and seven months

COLONEL C F WILLIS, I M S, acts for Colonel D French Mullen, I M S, as Deputy P M O, India, during the latter's absence on leave

LIEUTENANT F F S SMITH, I M S, acted as Cantonment Magistrate, Multan, for 11th May *vice* Major Beaman on leave

CAPTAIN W J COLLINSON, I M S, has been granted by the Secretary of State a further extension of leave by four months. He went on leave in April 1909, and it was extended for 6 months and now for 4 months more

COLONEL A M CROFTS, I M S, C I E, P M O, Jullunder Brigade, has obtained eight months' leave

MILITARY ASSISTANT SURGEON J DOYLE, Civil Surgeon, was granted three months' privilege leave and Military Assistant Surgeon D John, M B, was appointed to act for him as Civil Surgeon of Balaghat

MILITARY ASSISTANT SURGEON V G MATHEWS has joined the Central Provinces for Civil employment

THE services of Captain F H Stewart, I M S, are placed at the disposal of the Bengal Government. Captain Stewart has been with the Marine Survey

THE services of Captain M J Quinke, I M S, are placed at the disposal of Madras

THE promotion of Major R F Brind, I M S, is antedated from 28th January 1910 to 28th July 1909

MAJOR W D HAYWARD, M B, I M S, Police Surgeon, Calcutta, to officiate as Medical Storekeeper to Government, Calcutta, *vice* Lieutenant Colonel E F H Dobson, M B, I M S, appointed to act as Medical Storekeeper to Government, Lahore Cantonment, during the absence of Lieutenant Colonel P W O Gorman, I M S, granted six months' leave on private affairs, with effect from the 2nd May 1910

MAJOR T E WATSON, I M S, recently Civil Surgeon of Trichinopoly, has got long leave up to 2nd December 1911

MAJOR T H SIMONS, I M S, is due out from furlough on 25th August 1910

MAJOR H KIRKATHICK, I M S, is due out from furlough on 15th December next

CAPTAIN W H TUCKER, I M S, has got nineteen months' leave and is not due out till 9th November 1911

CAPTAIN M N CHAUDURY, I M S, has got four teen months' leave up till May 1911

CAPTAIN A CHALMERS, I M S, is due out from long leave on 20th August 1910

CAPTAIN T W HARLEY, I M S, has leave up till 10th June 1911

CAPTAIN W A JUSTICE, I M S, is due out from furlough on 30th September 1910

CAPTAIN J M SKINNER, I M S, joined civil employ, Madras, on 7th May, and is posted as Fourth Physician at the Medical College Hospital

ON return from leave Captain J J Robb, I M S, was under order to act as Superintendent, Central Jail, Vellore

CAPTAIN J MORISON, I M S, who has joined the Civil Medical Department, E B and A, is posted as Civil Surgeon, Sibsagot

THE services of Captain J B Christian, I M S, are placed permanently at the disposal of the Government of Eastern Bengal and Assam

LIEUTENANT H L MACKENZIE, I M S, took charge of the medical duties of Sheikhudin Sanitarium on 11th May 1910

CAPTAIN JAMES MASSON, I M S, a Civil Surgeon in Bengal, at home on leave, has taken the F R C S, Ed

MAJOR W H KENRICK, I M S, was granted three months' privilege leave from 16th May and Asst Surgn Umacharan Ray acted as Civil Surgeon, Nimar District

CAPT E J C McDONALD, I M S, District Plague Medical Officer, was granted two months and twenty five days' privilege leave from 22nd May 1910

CAPTAIN C S MALCOMSON, I M S, has an interesting note on pigsticking in the *Guy's Hospital Gazette* for 14th May 1910

MAJOR R H MADDON, I M S, Civil Surgeon, Darjeeling, is appointed, with effect from the 2nd April 1910, to officiate as a Civil Surgeon of the first class, during the absence, on leave, of Lieutenant Colonel D G Crawford, I M S, or until further orders

MAJOR B C OLDHAM, I M S, Civil Surgeon, 24 Parganas, is appointed, with effect from the 1st April 1910, to officiate as a Civil Surgeon of the first class during the absence, on leave, of Lieutenant Colonel F C Clarkson, I M S, or until further orders

MAJOR A GWYTHYR, I M S, Civil Surgeon, Saran, is appointed, with effect from the 4th May 1910, to officiate as a Civil Surgeon of the first class during the absence, on leave, of Lieutenant Colonel J G Jordan, I M S, or until further orders

MAJOR F O'KINEALY, I M S, held substantively *pro tem* the appointment of a Civil Surgeon of the first class from the 1st to the 10th March 1910. He also officiated as a Civil Surgeon of the first class from the 11th to the 31st March 1910, during the absence, on leave, of Lieutenant Colonel F C Clarkson, I M S

MAJOR G MCPHERSON, M B, I M S, is granted, from the date of relief, such privilege leave of absence as may be due to him on that date and one year's study leave in combination with furlough for such period as may bring the combined period of absence up to two years

CAPTAIN W P G WILLIAM, I M S, has joined the Madras Jail Department

MAJOR W R BATTIE, I M S, is posted to Mewar as Residency Surgeon, with effect from 18th May 1910

LIEUTENANT COLONEL H E BANATVALA I M S, Civil Surgeon, who was granted combined leave by Order No 1362, dated the 22nd June 1909 has been granted, by His Majesty's Secretary of State for India, study leave from the 17th January to the 6th April 1910

MAJOR S A HARRIS, M B, DPH, I M S, took over the duties of Sanitary Commissioner, Bimra, with effect from 18th May 1910

LIEUTENANT COLONEL F C PEREIRA, I M S, Civil Surgeon of Trichinopoly, had five weeks' privilege leave ending 7th July 1910

LIEUTENANT COLONEL R ROBERTSON, I M S, Professor of Medicine Madras Medical College, is due out from furlough on 22nd November

THE services of Lieutenant Colonel C M Thompson M B, I M S, are placed permanently at the disposal of the Government of Madras, with effect from the 17th May 1910

THE services of Major D H McD Graves, M B, I M S, are replaced at the disposal of His Excellency the Commander in Chief in India

CAPTAIN H M MACKENZIE M B I M S, is appointed to officiate as Professor of Physiology Medical College Calcutta, during the absence on leave of Captain D McCry, M B, I M S, or until further orders

CAPTAIN J W LITTLE, I M S, an officiating Agency Surgeon of the 2nd class, is granted privilege leave for two months and twenty nine days, combined with furlough for eight months and one day and study leave for six months with effect from the 10th May, 1910, under Articles 233 and 308 (b) of the Civil Service Regulations and the Regulations prescribed in the Notification by the Government of India in the Army Department, No 25, dated the 7th January 1910

CAPTAIN G F I HALLAN, I M S, is appointed to officiate as an Agency Surgeon of the 2nd class and is posted as Civil Surgeon of Dehra Ismail Khan, with effect from the 10th May 1910

MR W C L DEFEH, I S M D, Civil Surgeon Gujranwala, assumed charge of the duties of District Plague Medical Officer Gujranwala, in addition to his own duties, with effect from the forenoon of the 26th May 1910

The services of Captain A Cameron, I M S, having been placed at the disposal of the Punjab Government he was posted to Gurdaspur where he assumed charge of his duties on the forenoon of the 15th May 1910

The services of Captain G I DAVIS, I M S, are replaced at the disposal of the Government of India in the Home Department with effect from the forenoon of the 21st May 1910 on which date he relinquished charge of his duties as Assistant Plague Medical Officer, Lahore

LIEUTENANT COLONEL E A W HALL, I M S, is allowed two months and twenty six days' privilege leave and Capt H Innes, I M S, acts for him as Civil Surgeon of Dacca

LIEUTENANT J F JAMES, I M S, is transferred to Jalpaiguri as Civil Surgeon

CAPTAIN C R O'BRIEN, I M S, is transferred to Buxar, vice Captain H Innes, I M S

CAPTAIN C A GODSON, I M S, is transferred to Silehri

CAPTAIN G I DAVIS, I M S, has joined the Civil Medical Department of the United Provinces

THE date of promotion of Colonel G W P Denny, vice Colonel C H Bertson, C B, I M S, is dated 16th June 1910

CAPTAIN JAMES GOOD, I M S, is appointed Medical Officer, Rangoon Volunteer Rifles, from 1st April 1910

WITH reference to the notification of the Government of India in the Home Department No 520 dated the 13th of May 1910, Lieutenant Colonel C J Bamber, I M S, Sanitary Commissioner, Punjab, assumed charge of his duties as Officiating Inspector General of Civil Hospitals Punjab in addition to his own on the afternoon of the 11th of May 1910, relieving the Hon'ble Colonel F E L Bate, C I F I M S, proceeding on leave

WITH reference to the notification of the Government of India in the Home Department, No 521, dated the 13th of May 1910 Major E Wilkinson, F R C S, I M S, Officiating Sanitary Commissioner, Eastern Bengal and Assam assumed charge of his duties as Officiating Sanitary Commissioner, Punjab, on the forenoon of the 2nd of June 1910, relieving Lieutenant Colonel C J Bamber, I M S, of the additional duties

ON return from leave Captain V H Roberts, I M S, was attached to the Ludhiana district, for plague duty, with effect from the forenoon of the 11th May 1910. He assumed charge of the duties of District Plague Medical Officer on the forenoon of the 12th May, relieving Captain C F Southon I M S, proceeding on the leave granted him in Punjab Government Notification, No 302 L P, dated 15th April 1910

MAJOR F O KINFAY, I M S, is to be Surgeon to the new Viceroy

We heartily congratulate SIR R HAYLOCK CHARLES F R C S I, I M S, (ret'd) on his appointment along with SIR F TREVES, Bart, as Sergeant Surgeon to the King. It is a compliment to the whole Indian Medical Service

Notice

SCIENTIFIC Articles and Notes of interest to the Profession in India are solicited. Contributors of Original Articles will receive 25 Reprints gratis, if requested

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Treatise on Fistula in Ano (Esay English Text Society)
Prophylaxis of Malaria Lt Col Hehr, I M S (Pioneer Press)
Activity of Epinephrin Schultz (Public Health, U S A)
The Oxidases Kastle (Public Health U S A)
Comments on U S A Pharmacopoeia (Public Health U S A)
Formulaire des Spécialités 1910 (Paris J B Baillière et al)
Box's Post mortem Manual (G. Churchill)
Voguish's Duodenal Ulcer (Longmans)
McKendrick's Pathology New Edition (W B Saunders & Co)
Records of the Indian Museum, 11 & 1
Goodheart and Still's Diseases of Children (Churchill)
Sir W Whittles Materna Medica Ninth Edition (Baillière, Tindall & Cox)
Thompson's Compendium of Medicine and Pharmacy (Baile Sons and Danielson)
International Clinics (J B Lippincott Co)
L Rogers Fevers in the Tropics (Oxford Medical Publication) New Edition

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Original Articles.

THE OPERATION THEATRE

By P. C. GABRETT,

MAJOR, I.M.S.,

Professor of Surgery, Medical College, Madras

- (1) Arrangement of theatre and subsidiary rooms
- (2) Doors and windows Ventilation and artificial lighting
- (3) Fittings
- (4) Sterilizing arrangements
- (5) Necessity for gas supply
- (6) Spectators Arrangements for
- (7) Walls, ceiling and floor
- (8) Surroundings
- (9) Ventilation Natural or forced
- (10) Water-supply Heating and purification
- (11) Separate theatres—(a) Out patient theatre
(b) Theatre in block for septic cases (c) Urgency or R. M. O.'s theatre (d) Theatres for each Surgeon
- (12) Additional rooms and necessity for pathological or microscope room

I will first draw your attention to two rough ground plans of —

1 A single

2 A twin operating theatre

In devising such plans there are several objects to be kept in view

The operation room is to be kept only for operating, it is neither to be used as a lavatory nor as a dressing room nor as a store room, all these subsidiary necessities must be confined to subsidiary rooms

Neither is the operation room to be used as a passage way nor as a debating room

In the development of this idea designers are apt to multiply the number of subsidiary rooms unnecessarily and so fall into either the maze type or the hotel corridor type of design

I have endeavoured to abide by the rule that each subsidiary room should be directly accessible from the operating room. All other rooms, such as microscope room, splint room, etc., although desirable adjuncts should not be considered as essential to the theatre proper. They may be built in any position or of any type that convenience may suggest—but are not subject to the special rules that govern the construction of operating theatres, and provision for them should not be allowed in any way to destroy simplicity of design

Procedure—The patient is brought into the anæsthetic room, and when ready into the preparation room

Here he is prepared for operation—bandages cut off—the operation area washed and surrounded by sterilized towels before the table is wheeled into the theatre. The Surgeon and his assistants slip on canvas overshoes on entrance into the dressing room, take off their coats—put on waterproof aprons, pass into the preparation room—wash and sterilize their hands, put

aprons, gloves, caps and masks, if all these are thought necessary, and pass ready equipped into the theatre.

The students and spectators enter by separate doors behind a breast high partition—no one ever crosses the floor of the theatre without wearing the canvas overshoes

The sterilizing room communicates with the theatre by a window ledge opening fitted with a sliding shutter through which instruments can be handed when required

When the operation is over, the table can be wheeled out by a separate passage without passing through the anæsthetic room

The internal communications (except into the operating room) between the various subsidiary rooms are not provided with doors and are made of sufficient width to easily admit a trolley or stretcher—that is to say, not less than four feet six inches

The doors leading into the corridor and into the operating room should be of the sliding type if they can be really well made, but I should prefer a push-door fitted with silent self-closing hinges and automatic catch-back to the sliding doors which I have seen turned out by the P. W. D.

Panels and ledges should be avoided in their construction. If forced ventilation is employed a good close fitting sliding door into the theatre is almost a necessity

Every room should be fitted with wall cupboards wherever the thickness of the wall allows. These are backed with white tiles and have glass shelves and doors. The lowest shelf should not be placed lower than two feet six inches from the floor. Tiled shelves may also be built out from the wall—or they may be constructed of metal, marble or glass

Moveable glass shelves on brackets of the usual type can, of course, be fitted at any time if desired, and glass and metal cupboards used whenever wall cupboards are impossible

Operating Theatre, Permanent Fittings—A marble shelf for lotion bottles four feet high, and a marble ledge projecting from the window opening into the sterilizing room

Moveable Fittings—Two operating tables, two stools, two glass cupboards for instruments and ligatures—six to eight tables, of which at least three should be on wheels, and a floor tray—a metal frame holding six pivoted lotion bottles may with advantage take the place of the marble shelf

Preparation Room—On either side two basins supplied with taps of the elbow or foot lever type (one sprinkler and one non-splash), and a tap bottle of ether soap may be conveniently screwed to the wall over each basin. A marble ledge two feet high supports two jam jars or basins of lotion, two minute sand glasses, metal towel rollers and a looking glass complete the lavatory fixtures. The waste water is discharged by an open channel

being $6-10\frac{1}{2} \times 2-10\frac{1}{2}$, the upper $4-4\frac{1}{2} \times 2-10\frac{1}{2}$, the central panel forming a casement capable of being opened by a lever. Lt Colonel Giffard, I.M.S., in the Maternity Hospital, Madras, has a sash window, the upper and lower halves working independently, of which the panels measure $4-7\frac{1}{2} \times 2-11\frac{1}{2}$. I see no objection to a roll up outside sunblind which would protect the theatre from heating by sun glare during the hours that it is not in use.

It is a trying experience to do an afternoon operation in a theatre which has been gradually heated by the glare of a hot weather sun upon an unprotected plate glass wall.

Fans—Overhead fans are a necessity in Madras for the greater part of the year (certainly if no forced ventilation is adopted), but I think they constitute a danger. They collect dust, and shower it down when set in motion, they raise the floor dust from beyond the table and shower it down on to the table.

I think, they further constitute a danger by chilling an exhausted, perspiring patient. The danger of dust collection can of course be avoided by wiping the fans every morning with phenyle and there should in theory be no floor dust to raise, but practically the danger is only lessened and not eliminated by such precautions.

Surroundings—There can be no better surrounding than grass.

Colonel King makes the excellent suggestion that adjacent roads and pathways should be made dustless as far as possible. The best way to do this is to soak in tar all the material of which the road is made, while it is being put down. A belt of trees, so long as it does not interfere with lighting should also serve as a screen for wind blown dust.

Ventilation—The first theatre in which I saw artificial ventilation employed was St Thomas' Hospital, London, about 5 or 6 years ago, but until I heard the other day that it was in use in Rangoon I had no idea that it had been employed in India. Colonel King kindly supplied me with a good many details. He allows a velocity of 5 feet per second at the points of admission of which a sufficient number are provided to admit of the air being changed ten times per hour. Each circle of admission is $11\frac{1}{2}$ inches in diameter guarded by moveable glass discs with central screws. The fan is placed under a shelter on the roof in a special chamber of which the side open to the air is protected by a perforated metal screen to catch coarse dust.

The fan forces the air through a cotton filter of 2 to 4 inches in thickness. The filtration area will vary (about 64 sq ft for a theatre $30 \times 20 \times 14$) according to the amount of air necessary. The cotton-wool is lightly packed between wire mesh $\frac{1}{2}$ inch in diameter made in moveable sections. After passing through the filter the air is forced through a shaft of 14 inches in diameter at the rate of 1,500 feet per

minute. It then passes into a 19 inches shaft running horizontally above the level of the doors, down $11\frac{1}{2}$ tubes which terminate by a gentle curve flush with the wall at a height of 1 foot above the floor. Here it emerges at 300 feet per second. The extract openings are situated at the level of 8 feet—some of them near the window and some of them behind the students' gallery. Their total area is about 14 per cent less than that of the inlets. The air open into a common shaft 14" in diameter through which the air is drawn to a cowl-protected opening. The extract fan is protected by a simple wooden shelter with removeable sloping lid.

The Keith fan from Keith, Blackman & Co is recommended, the inlet fan having a diameter of $12\frac{1}{2}$ " and the extract fan one of 10".

There can be no question that the forced ventilation system offers considerable advantages in theory, and is said to work well in Burma. The air should be much purer. The current can be directed so as to pass from the table towards the spectators thus obviating the necessity for a glass screen. The ventilation can be regulated at will and the room should be cooler, whether in practice it is acutely cooler, whether it would be possible to do without overhead fans, or how far the use of fans would break up the direction of the current, are questions which only experience can decide. I cannot think that there is any necessity for the air inlets to be so close to the floor as one foot. I would suggest 3—4 feet as being a more suitable height and less likely to carry up floor dust, and also that all extract openings should be behind the students' gallery. In Madras the fans would be worked by electric motors, but if electricity is not available small gas or oil engines may be used. Messrs Mansfield & Sons, Calcutta, have put in several installations in Burma and recommend one by which gas could also be supplied for heating sterilizers, etc., as well as driving the engine. The cost would (approximately) be Rs 6,000. They say (I am inclined to agree with them) "It is a matter of surprise to us that a gas plant is not considered a matter of first importance to any hospital." A large theatre should not be dependent upon the efforts of a ward boy struggling with Primus Stoves.

Water-supply **Hot water**—I do not consider that a pipe supply of hot water is so necessary in the climate of the South of India as to make it advisable to instal a low pressure system with special boilers and cisterns.

If there is a gas installation it would certainly be an advantage to have separate gas water heater attached to individual taps.

Purification—No water should be allowed to reach the operation theatre except through pressure filters. If there is a public water-supply at good pressure—an unusual contingency in India—then direct filtration can be employed.

If there is no water-supply at sufficient pressure, then the water must be pumped daily through a candle filter into a supply cistern situated not less than 25 feet above the floor of the theatre. If the water-supply is of exceptional purity this primary filtration may be omitted.

The water from the supply tank must again be filtered on its way down to the theatre by passing through a filter inserted in the pipe line close to the tap.

Each filter should be in duplicate so as to allow of alternate use and cleansing. The number of candles necessary varies inversely with the pressure available. Any number of candles can be fitted in a pressure proof cast-iron cylinder and inserted anywhere in a pipe line. Directions for the care of filters are issued by the Berkfeldt Company.

It is a tremendous gain if the tap water supply in the theatre can be regarded practically as sterile. A pure air and a pure water supply are the first conditions in an aseptic theatre.

Lighting—Electric lighting is a great boon in a hot climate. A shaded group of three 16-candle power lamps gives a very satisfactory light, but even these are very hot. The usual way of mounting is by suspension from the ceiling, but I think a long straight jointed bracket from the wall which can be folded back when not in use has advantages.

Two switches should be fitted in case of accidents, and it would be advisable to also keep an oil lamp in working order which would be readily available if suddenly needed. A very useful accessory for any theatre would be an electric search-light, by which an intense flood of light can be directed into any body cavity. If only gas were available an incandescent lamp would of course be used for lighting, but would be much hotter.

A transformer switchboard in the wall from which small lamps for cystoscopic and other purposes up to 10 volts can be readily worked should be always fitted, as a battery is dirty, clumsy and unreliable. If the table is a fixed one a useful permanent connection may be fitted to it.

Instrument cupboards should also be well lighted. Windows in side rooms should be constructed on exactly the same principle as the main window in the theatre and of as large a size as the architects will allow. They must be protected from the sun as they will be situated east and west.

Theatres for urgent and septic cases—In every hospital there is a block set apart for septic cases. There can be no doubt whatever that this block should be provided with its own theatre which must be constructed and furnished on exactly the same principles as the aseptic theatre I have described.

The more septic the cases operated upon the greater are the precautions necessary to avoid transmission of infection. I do not think this principle is sufficiently recognised, anything is regarded as good enough for septic cases.

There is no necessity to make arrangements for students, and there need be only two accessory rooms one for sterilization, and one for preparation.

With regard to the question of an urgency theatre (chiefly for the use of the Resident Medical Officer) I recognise that questions of expense, equipment and staffing put a limit to the number of separate theatres that may be theoretically advantageous. At the same time one must remember that the Resident Medical Officer has often to work at night, with insufficient and inexperienced assistance and that the patients are ill-prepared and dirty, perhaps vomiting, so that it is extremely likely that the rules of asepsis will be violated—for instance ligatures may be handled with dirty hands, instruments may be put away improperly cleaned and so the theatre is left contaminated for the next day's work. And yet many of the Resident Medical Officers' cases are not cases that should be operated upon in the theatre for septic cases.

I find it difficult to avoid the conclusion that there should be an urgency theatre where all urgent, dirty or imperfectly prepared cases may be operated upon.

There should, therefore, be two theatres side by side, one for routine clean operations and one for urgency cases, each with separate equipment. The out-patients and septic cases will also each have a theatre in their special blocks. The designing and equipment of these theatres affords plenty of interesting material for discussion, but I have not had time to go into the question for this paper.

Additional rooms—(1) The theatre should be easy of access from the wards and lifts. (2) In close proximity to the theatre there may be an office room for entering and keeping record of work and books of reference. (3) A microscope and specimen room with everything necessary for taking specimens is a growing necessity. It should be possible for an assistant to cut, examine and report upon a section of a tumour while the operation is in progress, and for constant almost daily bacteriological tests to be carried out as to the purity of air, water, ligatures, dressings, assistant's hands, instrument, etc. This is the only way in which the machinery of the theatre can be kept thoroughly tuned up. The daily work of the theatre should almost provide work for a small pathological laboratory.

Extra store rooms, motor room, etc., may also be found necessary so that room should always be left for expansion, but as I have already pointed out these do not form an integral part

of the theatre and may be placed anywhere or built in any type that convenience dictates

In conclusion I would be the last to deny that excellent result can be obtained with much simpler and less expensive surroundings, but those of you who are surgeons—I do not mean those who do a casual operation now and again—but those who operate morning after morning on foul cases and clean cases, on hopeful cases and hopeless cases just as they come—I repeat those of you who are surgeons will agree with me when I say that no expense, and no trouble is too great if by any means we can save a single knee-joint from infection, a single eye from blindness or prevent a single case of septic peritonitis

I would further point out that modern surgery is setting up a higher standard of aseptic results than the mere absence of suppuration and recognises the difference between wounds that heal without a trace of toxic reaction and those in which healthy tissues give clear evidence of their effort to dispose of their dose of septic infection without suppuration. We are fighting septic organisms all the time and we intend that our weapons shall be the best obtainable

Note—I owe Colonel King many thanks for the full information on the subject he has so kindly sent me, and also to Lt-Colonel Giffard and Majors Elliot and Bud, I M S

THE ORGANISATION AND MANAGEMENT OF ABDOMINAL OPERATIONS

By R F STANDAGE, M B O P,

MAJOR, I M S,

Residency Surgeon, Bangalore

PART I

THE WARDS AND OPERATION ROOM AND PREPARATION OF THE PATIENT

AN isolated case of laparotomy may be treated quite reasonably and efficiently, in a private house or in the wards and operation room of a hospital not specially fitted for such work. I have frequently had to operate under such conditions. But to deal successfully with a large and constantly recurring number of cases requiring abdominal section, hospital and operation room equipment and organisation must be in a high state of efficiency, and from one's own work, and from the experience of others, lessons must be learnt, not only in the technique of the various operative procedures, but in the accessories and equipment which should be at hand to ensure a good percentage of success. Such knowledge is of even greater importance than technical skill, and I would expect a far greater saving of life from the work of a surgeon whose aim is to so mould his hospital, drill his assistants and perfect his equipment, that the chances of

mishap are reduced to a minimum, than from that of a man, however brilliant personally, who leaves the work of his assistants and nurses and the construction and furnishing of his hospital to chance. In all surgery to be forewarned is to be forearmed, but to no branch of the art is the saying more applicable than to the surgery of the abdomen

The surgeon who undertakes the cure of abdominal complaints by laparotomy must be prepared to perform any of the operations peculiar to that region each time that he makes his first incision. Diagnosis in abdominal cases is often vague, and the comparative ease with which a diagnosis is made after the opening of the abdomen is, I fear, a frequent temptation to neglect exactitude. It is therefore in the abdomen that surprises are frequent, and he who foresees them and is prepared and equipped for the unexpected will command success

As an indication of the class of abdominal work which a surgeon may expect in an Indian mofussil hospital I have collected from my hospital and private notes a series of 325 operations in which the peritoneum was opened, and on them I will base the remarks I have to make on the organisation and conduct of such work

Class of operation	Number of operations	Deaths
Hysterectomy (total and sub total and Myomectomy)	12	3
Salpingo oophorectomy (single or double)	54	5
Ovariectomy	37	3
Extra uterine gestation	24	0
Abdominal fixation and suspension of uterus	51	
Exploratory abdominal operations	11	2
Hepatic abscess	16	3
Hepatic hydatids	7	1
Cholecystotomy and choledochotomy	4	1
Appendicectomy	27	2
Laparotomy for tubercular peritonitis	6	1
Laparotomy for acute intestinal obstruction	5	3
Laparotomy for intussusception	1	1
Laparotomy for pelvic hydatids	1	0
Laparotomy for suture of intestines for wounds	4	0
Hydronephrosis and nephrectomy	3	0
Gastro enterotomy and gastrotomy	4	1
Cesarean Section	5	1
Heintz { Abdominal 1 Umbilical 2 Inguinal 40 Strangulated 5 (2 deaths) }	48	2
Colotomy	4	0
Epiploexy	3	0
	325	20

The wards—This paper is not a treatise on hospital construction, so on this subject my remarks must be brief and very general. Most surgeons in India will have to use their hospitals as they find them, but to those who are fortunate enough to have funds for alterations or for new buildings allotted to them, I would suggest that, before the plans for their proposed buildings are passed for execution, an inspection of some

of the most recently built Indian hospitals would save much heart burning and subsequent argument. At Belgaum, in the Civil Hospital, a model will be found from which most useful lessons for the building of mofussil hospitals will be learnt, and which will deservedly excite much envy in the hearts of those who see it and cannot go and do likewise. I have heard it said that provided the operation room is as perfect as possible, and the wound is surgically aseptic and properly dressed when it leaves the operation room it matters little what the ward is like. I disagree with this, and I think that expense incurred on making hospital wards as perfect as possible, is money well spent. It is in the ward that the patient first makes acquaintance with the hospital, and it is there that the case will terminate, and it is there too that the doctors and nurses, as well as the patient spend most of their time. The construction, ventilation and sanitary arrangement of the wards, therefore, should be of the best. Marble or glazed tile floors with glazed tile walls with all corners and angles rounded off by special curved tiles may sound like luxury, but a ward so constructed is economical in the long run, and work in it is pleasant, clean and safe, and consequently most likely to be good.

A good hospital bedstead is an essential for abdominal surgery. This should be, both in the European and Native wards, of the Lawson Tait spring-mattress pattern, with $1\frac{1}{4}$ inch tubular sides. A woven mesh mattress, with angle iron sides and wooden fastenings at the ends for the mattress, is highly objectionable, as it forms a splendid abode for vermin, and excreta and lotions, soaking through to the mattress quickly spoil it and cause it to give way in the middle.

Opinions differ as to the height the spring mattress should be from the ground, but I notice that in the most recently fitted hospitals, both in England and in this country, the tendency is to raise the height. At the Royal Victoria (Pirie) Hospital in Belfast, the height is 27 inches, and at the Presidency General Hospital in Calcutta it is the same. In the Bangalore hospitals I have chosen 24 inches as the height which is, at the same time, easy for the doctor for examinations and dressings and not too uncomfortably high for the patient in getting in and out. Whichever height is chosen, and it is better to be above than below 22 inches, it is essential that all the beds should be the same. The size of the bedsteads which I have chosen for the hospitals here are—

European wards 6 feet 6 inches \times 3 feet

Native Male wards 6 feet 6 inches \times 2 feet 6 inches

Native Female wards 6 feet \times 2 feet 6 inches

Native Maternity wards 6 feet \times 2 feet 9 inches

The narrower cots in the native ward give much more room. It is an improvement for all the cots to be enamelled white, as dirt is easily seen, and rubber feet to the legs are better than castors.

The position of the cot for an abdominal case is important. It should not face the light, but a good light should be thrown on the bed from behind the patient, and access to each side of the cot should be easy. For covering to the spring mattress, I supply all my laparotomy cases with a coil mattress. In the general native wards, however, the habits of the natives would make such a luxury too expensive and a date mat covered with a dhurie is found to answer well, being clean, easily and quickly procurable and inexpensive. In hospitals where funds will not allow of the supply of coil mattresses, such a covering on a Lawson Tait spring bedstead would do very well for native laparotomies.

The elimination or reduction of noise in the hospital and wards is desirable, but its attainment will be found difficult. I have provided all the European nurses with rubber soled shoes, in place of the high heels which they favoured, but I cannot provide the native servants with less fluent or quarrelsome tongues, and less stident voices. A general removal of the grey matter from Broca's convolution and severance of the laryngeal nerve supply for all native ward servants would save one's hospital patients much worry, but as a method accessory to the success of abdominal surgery it is not recommended.

The examination of the patient before operation is a precaution which will greatly affect one's success. By this I do not mean the pelvic or abdominal examination for the diagnosis of the disease to be treated, but a detailed investigation of the general condition to eliminate disorders which might impair results. It is necessary to exclude alcoholism, especially before undertaking the radical cure of hernia, and both for the sake of the patient and the operator, no operation involving the peritoneum should be done while the patient has any manifestation of secondary syphilis. Among natives of India, too, scurvy must be carefully excluded, as also diabetes and albuminuria, and it is unwise to do any large abdominal operation on a patient, whose anaemia is malarial and may be improved by treatment. Heart disease should be excluded and extensive pulmonary tuberculosis should contraindicate any abdominal operation except for the immediate saving of life. It would, I think, be useless to remove a simple ovarian cyst from the pelvis of a woman dying of consumption. Yet I have seen it done. The presence or absence of jaundice, as is well known, has an important bearing on abdominal surgery, especially that of the liver and gall-bladder, as in such cases when there is jaundice, there is a peculiar liability to hæmorrhage. Peculiarities of conformation or intellect should be noted. A very fat abdomen, for instance, would make an operation deep in the pelvis very difficult, and in such a case it would be advisable to consider the vaginal route, while a family history of mental disease, or signs of hysteria or melancholia, would put the surgeon on his guard for post-

operative insanity It is hardly necessary to say that extensive skin disease contraindicates any operation but one of emergency, but it is advisable to be watchful for cases of unsuspected scabies In one such case, on whom I operated for a complete perineal rupture, the whole wound suppurated and broke down This is the only case of mine in which such an accident has happened after a similar operation, and I came to the conclusion that the contamination must have come from the woman's own hand which had many sores due to itch, which had not been brought to my notice

THE PREPARATION OF THE PATIENT BEFORE OPERATION

I prefer, if possible, for a patient to be in bed a week before an abdominal operation During this time the digestion and intestinal tract is attended to, unhealthy vaginal discharges are treated, the preliminary examination is carried out, good sleep is obtained, by hypnotics if necessary, and, most important of all, the patient loses the fear of hospital and the dread of the operation which has so profound an effect in many cases Thus, of course, is not invariably so and in very nervous subjects it is often as well to operate at once, while in many native cases it is expedient to do without the week's preparation, for it is extremely likely that the patient will change her mind during the week, or if she does not, her friends will do it for her In such cases, I carry out only that treatment which is given to patients, who have been in hospital for a week during their last two days before operation If the operation is fixed for Saturday, on Thursday night three to five grains of calomel are given followed on Friday morning by a saline purge On Friday night an enema of soap and water is given and another early on Saturday morning The preparation of the skin is carried out by the nurses on Friday afternoon and consists of (1) a complete warm bath, (2) thorough shaving of the pubes and abdomen, (3) sterilization of the nurse's hands, (4) thorough washing of the skin with spirit soap, made of equal parts of soft soap, absolute alcohol and ether, for 10 minutes, (5) rubbing of the skin with ether, (6) thorough soaking of the skin with 1 in 500 perchloride of mercury solution, (7) dressing of the wound area with a pad of gauze wrung out of 1 in 1,000 perchloride of mercury solution Over the gauze a sheet of gutta percha tissue is laid and over that a pad of antiseptic wool, the whole being kept in position by a many-tailed flannel bandage This dressing is not removed till the patient is on the operating table In cases of urgency such as Caesarian section or ruptured extra-uterine pregnancy or in patients to whom it is suspected that this prolonged preparation would cause alarm, it will be found efficient to paint the abdomen once or twice with tincture of iodine, the shaving and detailed sterilization being put off till the patient is under chloroform In many cases I

give 20 grains of chlorotone on the night before operation It secures good sleep and I believe it materially lessens chloroform vomiting

TRANSPORT OF THE PATIENT TO THE OPERATION ROOM

Some sort of wheeled trolley is the best The pattern I use, which was made for me by Messrs Down Brothers, is 36½ inches high, the exact height of the operating table, so that it is extremely easy to transfer the patient from the trolley to the table and *vice versa* The trolley runs on rubber covered wheels on ball bearings, and, in addition to the ease and comfort which it affords to patients, it does away with the necessity of allowing any ward servants, who often are far from aseptically clad, into the operation room, as is necessary with any form of stretcher

One nurse can easily trolley the patient from ward to operation room

I find it a disadvantage, in our present trolley that it is a foot higher than the patients' beds, necessitating exertion by the patient, and lifting by the nurses which may be clumsily done A second trolley is being made for me, with a lever arrangement which will raise and lower the height of the top between 24 inches and 36½ inches When a long series of operations have to be done in one morning much time will be saved by having two trollies On one the patient just operated upon is conveyed back to the ward, the anaesthetist having employed the last five minutes of the operation, in giving chloroform on the other trolley, to the next patient, who is then ready to be wheeled in from the anaesthetizing room, directly the first patient has left the table This cannot be done with only one trolley It is difficult to transfer a patient from trolley to an operation table fitted with shoulder pieces for the Trendelenberg position, if the trolley is brought up along side the table, as the shoulder pieces are in the way In such cases it is better to bring up the trolley end on, at the foot end of the table and to transfer the patient's head first on to the table This is quickly done by two nurses, one on each side, and the patient's head passes easily between the shoulder pieces, the shoulders coming up to rest against them

In this connection it is necessary to digress again into the field of hospital construction, to suggest that facilities for wheeled transport should be made in every hospital building, by having all the wards and passages on one level, and where buildings of different levels have to be connected, by connecting them by ramped passages and not by steps

THE OPERATION ROOM AND ITS EQUIPMENT

Though habit leads us to speak of the part of the hospital set apart for operations as an operation room or operation theatre, it would be more correct to call it an operating block Such a block should consist of at least three rooms, an operation room, sterilizing room, and an anaesthetic

room To these might be added with advantage a surgeon's room for washing and sterilizing hands and a similar room for nurses The anæsthetic room should be a sort of ante-chamber to the operation room, separated from it by a wooden or frosted glass door through which the patient cannot see, but through which the trolleys can be easily wheeled The sterilizing room should communicate with the operation room by a service window, sterilized instruments and dressings being handed through over a polished marble counter The surgeon's and nurses' rooms should communicate directly with the operation room, and had best be without doors to obviate the necessity of opening or shutting them with sterilized hands Should space or funds not be available for these rooms the sterilization of hands can well be done in the operation room, and, in any case, it is essential to have in that room one set of basins with pedal taps, for the ready washing of hands while operating Instruments should be kept in the sterilizing room, or if there is a separate room for instruments it should communicate with the sterilizing room The rationale of these arrangements may be summed up as follows —(1) In the anæsthetic room the patient is chloroformed without seeing the operation table and the alarming array of surgeons, nurses and instruments, the former with arms suggestively bare, and the latter having a business like look highly displeasing to the nervous In such a room, too, a second patient can be chloroformed while a previous operation is being concluded, an obvious saving of time (2) By use of a separate sterilizing room all apparatus for heating, which with the exception of electric heating, is sure to be dirty, is removed from the operation room, and I make a rule that the nurse whose duty it is to attend to the sterilizers and instruments is not allowed into the operation room It is also a very decided advantage in India to keep the temperature of the operation room as low as possible by removing the heating apparatus out of it There is little doubt, too, that such apparatus vitiates the air In this way everything but the furniture and the instruments and accessories for the operation are outside the operation room, but easily and quickly accessible

The dimensions suggested for each of the rooms essential for an efficient operation block are — Operation room 22 feet square with a 5 feet bow window on the northern side The sterilizing room should not be much smaller, but need not have the bow window or the northern light, 18 feet or 20 feet square would do well At the Lady Curzon Hospital, the sterilizing room, owing to want of space, is inconveniently small, and I would advise any one about to build an operation block to have a good large room for sterilization The anæsthetic room need not be large, but requires a fairly good light A room 12' x 10' would amply serve this purpose The essentials of an operation room are smooth, impermeable and washable walls

and floors with all corners and angles rounded, and if these points are carried out it matters little, to my mind, if the floor or walls are of marble or glazed tiles or cement Marble or glazed tiles give a nice appearance and, an excellent glazed plaster for walls is made in Madras and the neighbourhood, I do not know if a similar plaster is made in other parts of India The flooring of the operation room should be continuous with that of all the adjoining rooms of the block In India in most hospitals it will not be possible to carry out the elaborate arrangements for ventilation which exist in European institutions, but it will be found possible to so arrange the ventilators of the operation room that a minimum of dust enters the room The best ventilators swings inwards from the bottom, and not, as do many ventilators which one sees in houses and hospitals from the middle An inward swinging ventilator catches dust which would otherwise be blown inside and its outward slopes tends to deposit it outside As regards lighting, I have reason to know that north light is the best In the male (Bowring) hospital at Bangalore the lighting of the operation room is from the South, and it is not nearly so good as that in the female hospital which is directly from the North A point to be remembered, in deciding on the arrangement of the windows in an Indian operation room, is that work is usually done between the hours of 6 A.M. and midday During all that time the sun is in the east, and will prove a great discomfort unless a blank wall is left on the East side of the room to keep it out I know of one hospital at least in India, where the surgeon has to work in a *toppe* to guard against a fierce sun beating through a large Eastern window In the Lady Curzon Hospital the operation room lighting is entirely from the North and West, the windows on those sides occupying nearly all the wall space A glass roof is impossible in India, as I know well, having had to work under one for many months The best roof is dome-shaped, either of masonry or reinforced concrete under tiles, the former having the advantage of being cooler in the hot weather For lighting at night, a five lamp electric cluster in a reflector over the table is of course the best and most convenient, but for those hospitals not lucky enough to have electric power at hand the "Sunlight" lamp will be found efficient It is dirty and somewhat difficult to manage and is apt to drip oil, but it gives a good shadowless illumination The dripping of oil during operation may be obviated by having a plain sheet of glass hung under the lamp

The furniture of the operating room should be simple and so constructed that it is easily cleaned and presents as few surfaces as possible for catching dust Given these essentials it matters little if it is made of wood, of metal, of marble or of the more up-to-date glass In the operating room at the Lady Curzon Hospital I

find the furniture efficient, though I recognise that it is far from ideal. As the finances of that institution are probably much the same as of other mofussil hospitals, I give here a list of what I have found essential in the hope that it may be useful to others who have the equipment of such a room thrust upon them. The easiest way to do it, of course, is to take counsel with the agent in India of one of the large instrument firms and ask him to supply an estimate of what is required. It will generally be found, however, that such an estimate greatly exceeds the funds available, and cheaper substitutes must be found for some of the equipment proposed. Let it not be thought that I, in any way, depreciate the ideal in operation room furnishing and equipment or think that cheaper imitations are as good. Our striving after scientifically exact surgical asepsis is based either on solid facts or on error. If the former (and who will gainsay it?), no detail, however small, should be omitted in our fight with post-operative mortality.

My list is as follows —

1 A glass-topped operation table, with central joint to give Trendelenburg position, and central drains. This table was kindly suggested to me and imported for me by Dr. Wanless of Miraj, from Clark and Roberts of New York. It is wonderfully cheap, costing only Rs 243-11-3 landed in India. It is strong, easily adjustable and with due care, easily kept surgically aseptic. I have fitted it recently with castors made in England, the original castors being not very good.

2 Two two-shelfed glass instrument tables. The size I find most convenient is 23" x 13" x 40". Cost Rs 132-12-0 each.

3 A glass-topped anaesthetist's table on easy castors, so that it can be easily wheeled from anaesthetising room to operation room. Cost Rs 101-11.

4 Two metal stools, for operator and for anaesthetist. Cost Rs 48-2.

5 Two marble-topped tables (13" x 2' 6") with rounded legs and framework. Similar tables supplied by instrument makers were far too expensive. These were made for me locally, the framework being made of wood enamelled white. The cost of each was Rs 80. About a quarter the instrument maker's price. Similar small marble shelves were made locally to carry lotion reservoirs. Cost Rs 20.

6 A Doulton ware sink with pedal trap arrangement for nurses' washing and for washing out bowls and basins. Cost Rs 262-5.

7 Two Doulton ware basins with pedal taps for surgeon and assistant. Cost Rs 634-2.

8 An enamelled iron sink with ordinary tap for dirty sponges and dressings and for throwing out blood, effusions and lotions. Cost Rs 28-8.

9 Two instrument cupboards. I hope some day to afford the elaborate and very efficient glass cupboards which one sees in the instrument catalogues. My cheaper imitations are made of wood, enamelled white with wooden shelves on

which sheet glass is laid. A wooden, white-enamelled ledge slopes at an acute angle from front to back at the top of each doing away with any surface which can catch dust. Cost of each Rs 35.

10 A douche stand with two 2-gallon reservoirs. Also kindly obtained for me from Clark and Roberts in New York by Dr. Wanless. Cost Rs 100.

With a larger sterilizing room, such as I have advocated above, some of the above furniture could, with advantage, be accommodated there. The instrument cupboards and the shelves for lotion reservoirs should certainly go there, though I think it as well to keep Perchloride of Mercury solutions in the operating room, lest, in hurry, they are poured over instruments.

THE STERILIZING ROOM EQUIPMENT IS AS FOLLOWS —

(1) A marble-topped table (6' x 2') similar in construction to those described above for sterilizers and instrument trays. Cost Rs 45.

(2) A Doulton ware sink, for washing bowls and trays, with elbow action tap. Cost Rs 39-8.

(3) A glass shelf for lotion reservoirs over this sink. Cost Rs 38-11.

(4) A large size Schimmel Bensch instrument sterilizer with spirit stove. Cost Rs 121-14.

(5) A high pressure steam sterilizer for dressing (size 27 $\frac{1}{4}$ " x 19 $\frac{1}{2}$ ") Cost Rs 700-2.

(6) A cupboard for dressings, ligatures, dry catgut, silk and other accessories. This is similar to the instrument cupboards described above. Rs 35.

(7) A 5-gallon copper water boiler with tap for the supply of hot and sterile water, with a chamber above for keeping sterilized towels and sponges warm. Cost Rs 65.

It will be seen that the complete equipment, excluding instruments, of operation and sterilizing room, cost about Rs 3,000.

A complete list of the equipment of instruments and accessories necessary for the conduct of abdominal operations would be far too lengthy for this paper, and would serve no useful purpose. I will, therefore, confine my remarks in this section to certain special instruments and accessories which I have found desirable or essential, in dealing with every incident, or accident, which may occur from the first incision to closure of the wound.

Two or three kinds of *scissors* are wanted. I prefer, for cutting the fascia, a stout blunt-pointed pair of angular scissors with rather long handles. For cutting ligatures and sutures a short straight pair is required, and for dissecting or dividing adhesions a long handled pair bent on the flat with sharp points.

Many forms of long-bladed *compression forceps* will be required. Those I prefer are Greig Smith's modification of Spencer Wells' large forceps bent at various angles. Dojen's straight and curved instruments and Galabin's straight forceps

are also useful for the broad ligaments For stopping uterine hæmorrhage I favour Greig Smith's or Jordan Lloyd's forceps which are more easily cleaned than the ordinary Spencer Wells For picking up peritoneum Leedham Green's rat-toothed dissecting forceps will be found the most effectual and for use in sewing Greig Smith's with hollowed points do the least harm to the tissues Long rat-toothed forceps are necessary, too, for use deep in the pelvis

Sponge holders—For use deep in the pelvis Of these a dozen should be at hand

Abdominal retractors—The most useful is Morris's variety, either double or single ended, made with specially long handles, so that they can be used, at a pinch, by a nurse, whose hands are not above suspicion, without imperilling the wound

Intestinal clamps—The most useful are Carwardine's, Doyen's or Arbuthnot-Lane's

Murphy's buttons—In three sizes, $\frac{3}{4}$ inch, 1 inch, and $1\frac{1}{4}$ inch, should always be at hand

Needles—For suturing peritoneum and fascia Doyen's curved needles will be found the most easily used, the angled eye preventing the suture material from slipping For skin sutures with silkworm gut a straight fine Hagedorn's is the best If sutures through all the abdominal layers are used some form of handled needle is necessary, and of these we find Elder's, Cullingworth's (straight and rectangular) and Doyen's efficient An excellent and most useful instrument for passing sutures or ligatures deep in the pelvis is Kuiz's needle-holder, which transfers a small threaded needle from one blade to the other and can be used in places inaccessible to the fingers Plain round needles, both straight and curved, for intestinal suture should be in stock and the "Spring eyed" variety saves much trouble in threading

Silk—Sterilized by boiling and kept in glass suture troughs, should be at hand in the following sizes—For very thick pedicles, No 6 For finer pedicles, and ligature of meso-salpinx and meso-appendix, No 4 For ligature of uterines, Nos 3 and 2 For intestinal suture, No 1 or 0 Chinese twist is more easily sterilized than plated silk

Sutures ready threaded on needles, for intestinal suture should be ready for every operation When threaded they can be run in parallel lines, through and through a long piece of lint, the whole being sterilized together From the lint the needles and sutures can be readily drawn out as required

Catgut—Is useful for the peritoneal covering of the stump in hysterectomy and for myomectomy We use Jellett's method of sterilization in alcohol and find it efficient The catgut is dehydrated by immersion in alcohol for a week and then boiled in alcohol for half an hour in Jellett's Sterilizer It is stored in a 1 in 20 alcoholic solution of carbolic acid

Kangaroo tendon—I find by far the safest material for the buried sutures which I use in the

peritoneum and fasciæ It is, if brought dry, easily sterilized by simple immersion in a 1 in 20 alcoholic solution of carbolic acid It can be bought fairly cheaply, however, ready sterilized in alcohol and by longitudinal splitting one thread can be made to provide three or four sutures

Silkworm gut—Fine or medium is the best for skin suture It is sterilized by boiling

Drainage tubing—I prefer rubber drainage tubing packed round with iodoform gauze for draining pelvic or abdominal cases to any of the glass varieties The most useful sizes for this purpose are Nos 20, 25, and 28

Sponges—We have entirely discarded real sponges They are too expensive and too difficult to sterilize Sterilized gauze is the best form of flat substance for supporting and protecting intestine, and excellent round and flat sponges can be made by the nurses from absorbent cotton-wool covered by gauze These are easily sterilized by boiling, or in the high pressure sterilizer

Needle holders—The most efficient for abdominal suturing is Carwardine's which can be used rapidly with Hagedorn's curved needles with the eye at the point

Nail brushes—Of these we keep a supply, sterilized by boiling and kept sterile for use by immersion in perchloride lotion They are sterilized afresh after each operation A *forceps for removing instruments, bowls, basins, etc., from the sterilizer* is a useful addition to the sterilizing room outfit A serviceable pattern is Arnold's "improved"

For broad pedicles, or for ligaturing omentum by interlocking ligatures some form of *ligature forceps* is more handy than a pedicle needle Childs's or Carwardine's are good varieties For *instruments trays* we find aluminium most useful The trays are practically indestructible, which glass or china certainly are not, but it must be remembered that they are destroyed at once by perchloride of mercury solution The most useful sizes are 18 inches \times 18 inches and 2 feet \times 2 feet

Apparatus for the administration of saline Solution should always be at hand, either for rectal, subcutaneous or submammary administration Baird's and Arbuthnot-Lane's small instruments will fulfil the latter purposes admirably

Retention catheters should be in stock for use in cases of bladder wound The handiest kind is Dow's

A *cautery* for sterilization of infected stumps as in appendicitis, or for touching small oozing points should also not be forgotten

The proper degree of *anaesthesia* is of first importance in abdominal surgery, and the comfort of operating with the abdominal walls completely relaxed and the patient breathing quietly will be highly appreciated by anyone who has had to carry out an operation while the patient strained and the muscles were like boards, and the abdominal contents were continually in the

wound. There seems to be a general consensus of opinion that ether cannot be used in India, but I have never heard the reason authoritatively stated. I have never used it alone, but I find the A C E mixture so useful in cases when much shock is expected that I am tempted to try ether alone, at any rate in the cold weather, in nearly all cases, as do so many American and European Surgeons. In my hospital work in India I have found it easy to train assistants to become quite useful anesthetists for ordinary operations, but for abdominal work it is more difficult. They readily learn the ordinary signs of anesthesia—(1) loss of conjunctival reflex, (2) muscular relaxation, (3) slow and deep respiration, and (4) fixed contracted pupils, but they forget that, having brought the patient to that point, she must be kept at it. They know only too well the danger of sudden pallor and of dilated pupils, and will often stop the administration during the cutting of the peritoneum on account of pallor and dilated pupils which are really due to shock and insufficient anesthesia. Patience and careful attention to their methods will soon teach them this fallacy and its danger, and it is wonderful how good they become, and a good anesthetist is a treasure indeed in abdominal work.

There are certain rules which it is essential to observe before and during the administration of chloroform.

(1) An examination of the vascular system, urine and lungs.

(2) The last nourishment, chicken broth or beef tea, 5 hours before the administration.

(3) A small dose of morphia subcutaneously about an hour before administration is useful.

(4) The administration should be begun directly the patient reaches the anæsthetic room. There is nothing so trying as to lie waiting, especially for an imaginative patient.

(5) False teeth, if any, must be removed.

(6) Nothing tight should be around the waist.

(7) Once the administration has begun it must be continued and no disturbance of the patient by talking to her, or by loud noises around her should be allowed.

(8) The head must never be raised higher than the body.

(9) On the onset of the signs of danger the anæsthetic must be stopped at once and means for resuscitation started.

(10) In vomiting the head must be turned to one side *at once*.

(11) The patient must be continuously watched by a nurse or by some responsible person after the operation is over.

(12) The anæsthetic must not be started unless the following articles are on the anesthetist's table—(1) Tongue forceps, (2) Gag, (3) Hypodermic syringe, (4) Tablets of strychnine, Ergotin, and Vaporoles of pituitary extract, (5) Brandy, (6) Ether, (7) Solids of Normal Saline Solution, (8) Adrenalin Solution.

It is well, too, to have a cylinder of oxygen handy for resuscitation in cases of asphyxia.

ORGANISATION OF THE NURSE'S WORK IN THE OPERATION ROOM

In Indian hospitals, where skilled assistants are limited in number much reliance has to be placed on nurses, and the arrangement of their work which we find to answer very well is to have three in attendance in the operating room on operation days. Of these, nurse No 1 is in the sterilizing room and is not allowed to leave it or come into the operation room. She hands sterilized instruments in their trays, and sterilized sponges, bowls and dishes through the service window to nurse No 2, whose duty is to take charge of them. Nurse No 3, usually the matron, has sterile hands, by which I mean that like the surgeon and assistants, she is not allowed to touch anything not sterilized from the time that her hands are sterilized to the end of the operation. Her hands are as carefully prepared as the surgeon's, and her duties consist in handling instruments to him when required to do so, in assisting with retractors and in preparing ligatures and sutures. Bowls, basins, suture-troughs, tubes of catgut and tendon, bottles and all articles which have not been sterilized by boiling are not handled by her at all, but are dealt with by nurse No 2 who, on the other hand, is not allowed to touch or handle any instrument, sponge, towel or ligature, which will touch the wound. The sterilizing nurse also is not allowed to touch any instrument or sterile sponge, towel or dressing. All instruments, bowls and basins are taken from the sterilizer in a special pair of tongs, and in the same tongs sponges are picked from the sterilizer and put in a sterilized basin and covered with a sterile towel. The kettles containing towels and dressings are picked out in the same way from the high pressure sterilizer and handed through to the operation room as required.

Let us consider in rather more detail the working of this system. The sterilization of the surgeon's and assistant's hands is commenced five or ten minutes before the arrival of the patient in the anæsthetising room and is continued while the patient is being chloroformed. Having sterilized his hands the surgeon proceeds to prepare sutures and ligatures which may be required during the operation. At Bangalore we use kangaroo tendon for buried sutures and thread it ready for use before each operation. The tendon is in tubes in alcohol, and the tube is picked up by that nurse who is allowed to touch non-sterile articles and the rubber cork withdrawn by her. With a long sterilized forceps the threads are withdrawn and dropped one by one into a sterilized bowl containing absolute alcohol. From this they are picked out one by one threaded and replaced in alcohol till required. Ligatures of silk and catgut are prepared on the same principle, the lids of the

troughs, or the corks of the bottles being removed by the hands of that nurse who will not touch anything which will touch the wound. The patient having now been placed on the table, the surgeon proceeds to the sterilization of the skin. Nurse No 2 removes the flannel binder from the abdomen and with a pair of forceps takes away the gauze dressing, and hands a bottle containing a sterilized nail brush in perchloride solution to the operator. From this with a pair of forceps he removes the brush, while the same nurse pours spirit soap over the abdomen. This is thoroughly scrubbed over the surface by the brush, and a final wash with perchloride solution is given and a piece of wet gauze laid over the incision area. Nurse No 2 now turns down the unsterilized sheet which covered the patient's legs, while nurse No 3 hands out sterilized towels from the kettle. These are arranged all over the patient's body except the small square area, covered by gauze, where the incision will be made. We find it unnecessary to pin the towels if the following plan of arranging them is followed.—The first towel is put transversely across the patient's legs, tucked carefully for about a foot under the blanket which covers the legs and then brought up to the level of the pubes. The second and third towels are placed longitudinally one on each side of the abdomen, and the fourth towel is placed transversely over the ends of the second and third, lying over the first, and in this way it keeps the second and third from falling. The fifth towel is laid transversely over the upper abdomen and chest on top of Nos 2 and 3, fixing their upper ends. Other sterile towels cover over any place when unsterilized linen shows, the assistant takes his place opposite the operator, No 2 nurse behind him with a bowl of swabs and flat sponges, and No 3 nurse stands to the surgeon's right, behind the instrument table and instruments. All sponges are counted—(at the Lady Curzon we always use the same number for every abdominal operation, 18 round and 12 flat) and the operation is ready to begin. Much drill and training will be necessary to instil the true "aseptic instinct" into the nursing staff, but once acquired it is invaluable and a well drilled operation room staff is of greater value than much personal skill.

THE ORGANISATION AND MANAGEMENT OF ABDOMINAL OPERATIONS

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PART II

THE subject of abdominal surgery is at present so constantly before the eyes of the medical profession, and has lately been so fully discussed in the medical papers that any further writing

might almost be considered unnecessary and superfluous. I do not propose to review the whole subject of abdominal surgery, but simply to set out clearly for the information of my brother officers of the Indian Medical Service and other surgeons in India, those methods of procedure and surgical practice which at present find favour in this great hospital. The technique of the Government Maternity Hospital gynaecological operation room changes considerably from year to year, new methods are tried, new procedure initiated, and from time to time the results reviewed. The majority of the abdominal operations that are performed here are undertaken for pelvic disease, and it is only about operations for gynaecological complaints that the Superintendent, Government Maternity Hospital, Madras, can be expected to speak with the authority derived from very considerable experience.

THE ANÆSTHETIC

2. The writer happens to have lately visited a large number of the operation theatres of the United Kingdom and on the continent, and hopes that these notes may succeed in conveying some information as to the points that one surgeon is likely to learn from another. Major Standage, in part I, has prepared the patient for operation, brought her into a fully equipped, fully staffed and carefully organized operation room and has left me, so to speak, to perform the operation. As I am not operating in my own theatre, I should ask permission at once to enquire as to the experience and capacity of the anæsthetist. It has been and still is my experience that the person who undertakes to give chloroform (no other anæsthetist is used) for abdominal section, undertaken for the relief of pelvic disease, must be prepared to force the patient into a much more profound condition of narcosis than is necessary in ordinary surgery. Chloroform has to be given far past the stage of loss of corneal reflex and must just stop short (during some parts of the operation) of dilatation of the pupils and cessation of breathing. A bold and skilful chloroformist makes abdominal surgery a pleasure to the operator and a timid or excitable one should not undertake the job and curiously enough shock seems to be less after very deep narcosis. This statement may seem at first sight to be an exaggeration, it is not an exaggeration, as I shall hope shortly to explain. Chloroform is given here from an ordinary Junker's inhaler, but we hope soon to substitute an apparatus which is much used in Germany, the Sauerstoff-Narlose-Apparat of Prof Roth-Diager u Prof Kronig-Diager (price 400 marks) made by I and H Loewenstein, Berlin. This beautiful piece of operation-room-furniture allows ether and chloroform to be given with oxygen in exact and measured doses mixed together or separate and without any hand-bellows-work on the part of the anæsthetist. In my opinion no operation room, that can afford it, should be without it.

The Sirdar Carbonic Gas Company, Byculla, Bombay, will refill the oxygen cylinders

VALUE OF MORPHIA BEFORE ANÆSTHESIA

3 It is our experience that $\frac{1}{4}$ grain of morphia given just before the anæsthesia is begun allows of the use of less chloroform, it is also our experience that stoppage of breathing in deep narcosis is more to be feared when morphia was given. I would never give morphia to a patient about to be anæsthetised by an inexperienced or timid anæsthetist. Ten to fifteen minims of liquor strychninæ injected just before the operation certainly seems to prevent shock in long operations. Strychnine is more than useless after shock has developed and its administration to a patient suffering from shock is as foolish a procedure as slapping a white baby (*asphyxia pallida*) or dipping the same into iced water. Weakly patients, however, are often given 10 minims of liquor strychninæ twice daily and digitalin 1/100 gr., also twice daily, on alternate days for a week before operation, to tune them up, with gratifying results. Good feeding almost amounting to feasting is also found to be excellent for a week or more before operation. The bowels should be opened the day before operation, but purgation and strivation find no place in our scheme of preparation. We are still doubtful of the results of injection of digitalin as an antidote to shock. We have used pituitary extract a few times in shock with disastrous results. A small hypodermic of morphia is almost always administered as the final suture is being tied unless the patient is suffering from profound shock.

PREPARATION OF THE SKIN

4 The skin—so much has been written on skin preparation that it is threadbare subject. I will only therefore remark that before I operate on Major Standage's patient I should ask to be allowed to paint the skin with 4 per cent iodine in acetone, or failing that with a saturated solution of picric acid in spirit. These two solutions have given the best results in this hospital and are quite harmless, although they discolour rather heartlessly a beautiful white abdomen. They are almost invisible on the Tamil's brownish skin.

OPERATION TABLES

5 Of the making of operation tables there is no end. For pelvic abdominal surgery it is essential that the table should be capable of being moved by some mechanical contrivance until the patient lies head downwards at an angle of 33 degrees to the floor. This position usually known as the advanced or excessive Trendelenburg position is best obtained by screws and not by ratchets, and the table also must be fitted with shoulder-rests to prevent the patient slipping off on to the floor.

6 To those who have not operated for pelvic disease with the patient under very deep narcosis

in this position (nearly standing on her head) the way the intestines fall away into the upper part of the abdomen and leave the pelvis clean will come as an almost divine revelation when first seen.

7 Some difficulty usually arises as to the position of the patient's arms when in this inverted position. They may be tied to her sides, but if the table is fitted with a removeable arched bar at the level of the patient's nipples, the arms can be easily and safely tied to this bar in a perfectly comfortable and natural position with the knowledge that neither neuritis nor paralysis will occur.

8 I should look askance at Major Standage's artificial sponges, because his operation room staff-nurse has forgotten to sew long pieces (9") of narrow tape to each sponge. The surgeon should not have to hesitate about plunging into the abdomen and temporarily losing sight of sponges and pieces of gauze. A long piece of tape or silk suture or even many long pieces of narrow tape do not in the least interfere with the wound or the convenience of the operator, but their presence ensures that sponges are not overlooked and left behind, and also it is much easier to pull out sponges by the tails rather than grope about for them in the abdomen with hands or instruments at the end of an operation. There is much mental relief in being able to use the familiar retort "You are another" to any of the operation room staff who, on counting the sponges and pieces of gauze just before the abdomen is closed, report that one of them is missing. If none but long tailed sponges and pieces of gauze are allowed to exist in your operation room you will probably find that the missing one is under the foot of a student. I once watched in a Scottish Clinic a desperate search for a missing sponge, ending in a heated argument between the surgeon and his nurse, conclude only when an onlooker reminded the operator that he had pushed a sponge into the vagina from its cut upper end! A long tail would not have been so easily lost especially if the additional precaution of clamping the end of the tail with a Spencer Wells Forceps had been taken. An uncomfortable feeling down your back in the *post-mortem* room or an equally uncomfortable seat in the Police Court may with certainty be avoided by long tails.

REFRACTORS

9 Retractors, concave and convex, etc., can be found by dozens in all instrument makers' catalogues, each abdominal surgeon invents his own either for use or advertisement. I do not propose to say more than that, Lacey's or Segond's retractors are mostly used here, but the surgeon whose instrument almanac is limited in size should remember that a long piece of silk passed with a needle through the abdominal wall or through part of it makes an useful and ready retractor which does not get in the way of the operator nor does it damage the tissues.

THE LIGATURES

10 After many wobblings of opinion and no small number of experiments the writer has decided to use only No 4 & No 2 Chinese twist silk for abdominal work. Plaited silk, all the catguts, flax thread, ox aorta, Kangaroo tail tendon, etc., have all, at last, passed into the limbo of forgotten things or back into the medical stores.

THE INCISION

11 The vertical median incision still holds in our opinion pride of place as the most useful and easiest to make and to mend, but transverse incisions reaching right across the abdomen have several times been made here with success and were not followed by hernia. From a limited experience of about 15 large transverse incisions I should say that very great care must be taken to exactly approximate the edges of the fascia with mattress sutures. In one case that supplicated the whole abdominal wall became a hernia and in another case done up-country by a surgeon who had only once seen such an incision the result was an enormous hernia and complete proptosis of the abdominal contents, eventually leading to the death of the patient. My opinion nevertheless on this question of transverse incision is still in a fluid state, because I have seen a lady, on whom I made a large transverse incision to remove a very large uterine fibroid, successfully bear twins at full term without the slightest yielding of the scar.

12 There seems to be no good reason to avoid transverse cuts as in addition to the main vertical central incision when more room is required than can be obtained by stretching open the wound. Such a transverse supplementary incision has often greatly helped the writer to deal with a suppurating and matted appendix vermiformis found mixed up with the right Fallopian tube and which could not have been clearly removed without the extra lateral cut.

DRAINAGE

13 Drainage is used here as little as possible and only when there is a certainty of the necessity for the escape of pus, serum, or other fluid. The most satisfactory drain seems to be two India-rubber tubes, one with holes and one without holes, lying close together along side a piece of sterile gauze.

14 A distinguished Vienna surgeon demonstrated to me last year the unexpectedly large amount of room that could be obtained for pelvic operations by prolonging the vertical skin incision well over the mons veneris and the vertical division of the tendon of the rectus right down to the bone at the symphysis pubis. A clean cut can easily be made without any danger of wounding the bladder if it is empty, and that viscus is separated from the posterior layer of the abdominal wall by a large space loosely filled with areolar tissue. The bladder when empty gets out of the way behind the retractor and gives no trouble. If

the bladder fills during a long operation and begins to intrude itself into the operation area it can be emptied by a catheter and it then quickly resumes its former unobtrusive position.

15 If the tubes are enveloped in gauze it is not possible to remove the gauze and retain the tubes in position. From a study of a large number of drained cases of abdominal section an impression has been left that the gauze sucks up and absorbs, probably by capillary attraction, a considerable amount of fluid, and when saturated allows the overflow to escape through the tubes lying alongside it. The gauze is usually arranged in a loose vertical spiral and is removed by gently twisting the gauze in the same direction as the original wound. As above mentioned one of the drainage tubes has no holes whilst its fellow is freely fenestrated. The idea of this arrangement is that should it be necessary to irrigate the wound with boiled water, the absence of holes in one of the tubes will secure deep irrigation if the water is directed into the wound down the uncut tube and will return through its fenestrated mate. I would not venture to publish such an ancient surgical 'tip' had I not noticed in other clinics that this simple dodge had been forgotten. India-rubber drainage tubes partitioned vertically are perhaps better in some cases than two tubes side by side, but they are rather expensive and are not always stocked by the stores or by the local chemists.

BLEEDING VESSELS

16 Bleeding vessels are *always* secured with silk ligatures. I personally hold the view, most strongly, that catgut in the abdomen is dangerous and completely out of place. Was it not C. B. Lockwood, who said that, "The efficiency of a surgeon might be gauged by the boldness with which he buried silk." A note of warning should here be struck for the benefit of the young and inexperienced, "Never close the abdomen until all the bleeding even the slightest oozing has ceased." Experience plainly shows that patients will slowly bleed to death into their peritoneum from what seems at the time of the operation to be only capillary oozing. In a doubtful case allow the patient nearly to come out of chloroform and the pulse to show that the blood pressure is up again before closing the abdomen.

17 Abdominal surgery differs, we think, entirely from the surgery in other parts of the body in that no packing of the wound or tight bandaging of the belly can be relied to stop hæmorrhage.

18 A series of short sentences must suffice the reader to picture to himself the actual operation.

PRELIMINARY QUESTIONS

1 Before the commencement of an abdominal operation on a woman ask loudly (so that there can be no mistake) whether her urine has been drawn off and what was the date of her menstrual period.

2 Use a sharp knife if you can get one in this country, if not, buy 6 boxes of scalpels and keep most of them travelling in the post to and from England on their way to and from a reliable cutter

3 Do not begin the operation until the anaesthetist is satisfied, that the patient is 'under' and supposing that the patient does move do not repeat Sir W Savoy's twit "Well Mr A, She may be under at your end, she is not under at mine"

4 Pull open muscle when possible rather than cut it

5 Avoid dragging on viscera

6 Operate quickly or as quickly as you can, shock is the twin sister of dawdling and then near relationship, which was well known in the preanaesthetic days, is often forgotten now

7 Insist that your assistant assists It is not his part to direct your movements or make suggestions except very occasionally A talkative assistant should have been smothered at birth

8 Always have the same number of sponges (or pieces of gauze) at every abdominal operation Should more than the ordinary number be found necessary during the operation you must train the nurse to always take out a finite fixed number The confusion in an operation theatre when there is any doubt as to the number of sponges in use has to be seen to be fully disliked

9 Close the abdomen layer by layer with interrupted silk sutures having first, if the wound is large, passed a couple of sutures through and through the whole thickness of the abdominal wall, these to be tied last and act as a splint to the abdominal wall I will not insult the reader by the suggestion that the wound he makes may suppurate, but I am bound to admit that in those of my cases that have suppurated there was great difficulty in subsequently removing long pieces of continuous suture Interrupted sutures come away unnoticed and the stitch abscess they form does not spread all along the wound

10 Give a small hypodermic of morphia as the last stitches are being tied

11 Put each instrument or needle back into the tray the moment it is no longer employed Some surgeons, whom we have seen, cover their patients with loose instruments during the course of the operation We consider that for obvious reasons it is a bad and dangerous habit which can easily be avoided "Bonney's needles are the best" This is not an advertisement but a decided opinion founded of experience The only drawback to their use is that they are very brittle

12 Train your instrument-assistant to quickly and forcibly slap instruments into the palm of your expectant hand held out towards him It should not be necessary to look round towards

him each time that a fresh instrument is required

18 When the patient gets back to bed the foot of the cot should be raised on blocks about 9" high, and a pint of warm water allowed to run slowly into the rectum This proceeding helps to revive the patient, lessens the duration of shock and materially diminishes the thirst and vomiting that sometimes follows chloroform narcosis It is a matter of experience, in this Institution, that a pint of water by the rectum is of greater value than the same quantity poured into the abdomen just before the wound is closed The explanation of this phenomenon is not clear, but there seems to be little doubt as to the fact We have just received a new electrically heated irrigation-can designed by Dr Paterson and made by Allen and Hanbury for continuous rectal irrigation, but have not sufficient experience of it to allow of criticism or of approval

19 For many years the tradition of the operation ward held abdominal section patients firmly down on their backs in bed with scarcely a movement of the toes or eyelids permitted I am glad to say that saner counsels now prevail, and whilst refusing to go as far as the American surgeon who says that he is delighted when he sees his abdominal section patients of the morning plucking flowers in the garden on the evening of the same day, we allow the patient to turn over and lie in bed in any attitude that she may find convenient Dozens of patients have told me that the back pains of the enforced dorsal decubitus are far worse than the pain of the operation wound. Patients are usually gently purged or at any rate given an enema on the day following the operation or at least on the second morning Here again it is noticed that the patients who have come to the table with some food still inside them, have greater satisfaction in and feel more relieved by the opening of the bowels than those miseries of the older regime who arrived at the operation table achingly empty and purged to perfection

20 When a patient is apparently going to die she is removed into a single bed ward in the most unobtrusive way possible as deaths, in a large ward, are most disconcerting to patients who themselves have only perhaps just escaped a similar fate

21 We do not feed patients at all during the first day unless they ask for fluid food, but on the other hand we give almost any kind of food at the patients' requests as soon as the bowels have been opened Patients are encouraged to sit up in bed as soon as they can do so and are allowed out of bed on the 8th day if the wound has healed by first intention and the stitches have come out dry It were better perhaps to stop this long article at this point because a really interesting and authoritative article on after-treatment could only be written by the operation-ward-sister without whose skilled assistance the patient would be miserable and the surgeon largely helpless.

THE TREATMENT OF ACUTE PERITONITIS,
AND OTHER CONDITIONS ASSOCIATED
WITH GRAVE SHOCK, WITH NOTES
ON CASES OF INTESTINAL
OBSTRUCTION, etc

By C C BARRY,

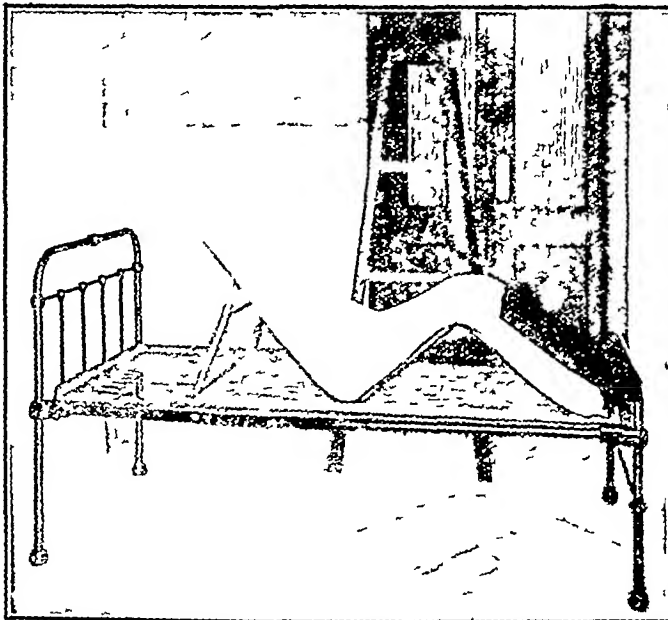
MAJOR, I M S,

Superintendent, General Hospital, Rangoon

THE reason for bringing this subject forward is not that there is anything startling or new to say, but because after enquiry I have been left very doubtful as to whether in this country the more recent advances in such treatment have been as widely appreciated as their importance warrants and therefore I feel that the experience of various members of this hospital staff for the last three years being at my disposal, such experience might be usefully exploited to illustrate the great changes that have taken place during the past five years or so in

It was in 1907 that this treatment by posture and rectal administration of fluid was commenced here, at first it was thought that having to depend as we so often have upon an ignorant and temporary ward boy as a special attendant upon the patient the continuous administration of fluid was an attempt beyond our capabilities, and we tried instead the plan of giving two hourly enemata of saline solution, the patient being supported in a sitting position by means of a bed rest and by a pillow or pillows placed below his knees, these measures gave us a great improvement in our results, but were attended by many disadvantages, such as undue disturbance of the patient by the two hourly enemata, great difficulty in keeping the patient propped up in bed, much worry to an already overworked nurse, etc, so that successive modifications were gradually evolved until the present procedure was adopted, and this has remained practically unaltered during the past year.

Our procedure is as follows—Immediately



the methods available of dealing with such a serious condition as acute general peritonitis. The great changes to which I refer are those due to the work of Fowler and Murphy, and briefly put consist in the adoption of the sitting position by the patient and a slow continuous administration of large quantities of normal saline by the rectum. Upon reading the various literature upon the subject one finds that there are numerous modifications of the original Fowler-Murphy recommendations, and although I proposed to describe the method that we have been gradually led to adopt in this hospital, I do not for a moment suggest that this particular method is the one and only method that could or ought to be adopted by any one working in a different hospital and under different conditions.

patient develops or is admitted with signs and symptoms pointing to acute general peritonitis, he is placed in a sitting position and maintained in that position by means of a special wooden or iron framework (made without difficulty by any local workman), the construction of the special frame can be readily understood from the accompanying diagram and photograph. An operation having been decided upon, the extent and nature of operation must depend partly upon the cause of the peritonitis and partly upon the general condition of the patient. In those very desperate cases of two or three days duration which are unfortunately well-known to all who practise in the East, the only operation attempted is that of draining the peritoneal cavity and the best drainage is by means of three tubes inserted deep down, one in the middle

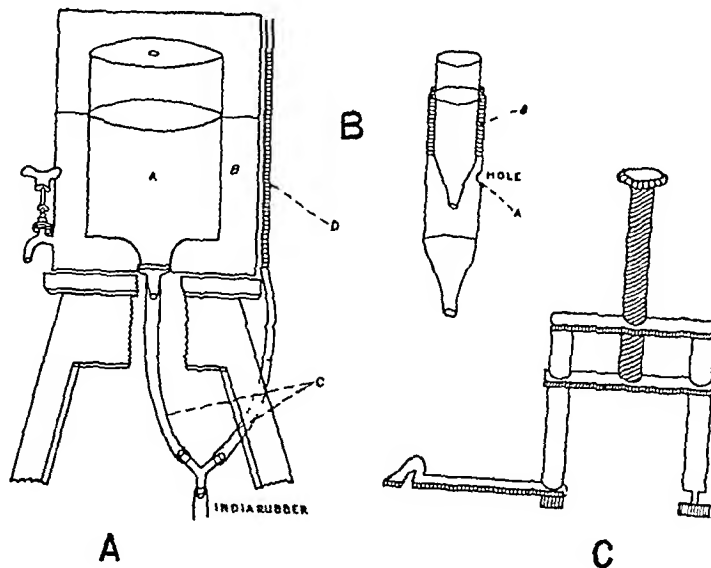
line just above the pubis, and one in each flank the whole operation taking about five minutes no attempt is made either to search for the cause of the peritonitis or to cleanse the abdominal cavity

The question of the advisability of searching for the cause of the peritonitis is one of great difficulty, much depends on the condition of the patient and his surroundings. Whenever possible, a search should be made, but it is essential the search should be quick and carried out with as little disturbance of the abdominal contents as possible. To fulfil these essentials, it is necessary the operator must have had considerable experience in abdominal operations, and also be aided by a sufficient number of skilled assistants with all the instruments for abdominal operations.

Unless the conditions can be obtained, I believe, the best results will be obtained by making no search, but by simply inserting drainage tubes as described below.

this simple and quick manner and which should be submitted to more thorough abdominal search must always be a matter for the particular operator to decide, but I am convinced that in patients gravely ill as the result of toxin and bacterial absorption from the peritoneal cavity little disturbance of the peritoneum and its contents is a very important factor in the subsequent well being of the patient, it is therefore of the very highest importance that all possible efforts should be made to arrive at an exact diagnosis before the abdominal cavity is opened, the old saying "open and see" applied to abdominal lesions is no doubt very excellent, but used as it so often is an excuse for careless pre-operative observation has probably caused the loss of many lives.

The operation simple or complex having been completed, the patient is put to bed supported as before in a sitting position and before his complete recovery from the anæsthetic the rectal irrigation is begun. The apparatus in use here



As an instance, I may mention a case of perforated typhoid ulcer in which the patient was far too ill to allow of any abdominal search being made. Under abdominal drainage and subsequent Fowler-Murphy treatment the patient made a really rapid recovery. Unfortunately he died some 14 days later of acute intestinal obstruction due to a band when quite convalescent. On such experience as I have had, I have come to the conclusion that unless all the means and appliances for rapid abdominal work are at hand it is best not to search in advanced cases of acute peritonitis.

Not a few of these apparently hopeless cases have recovered, in some without the cause of the peritonitis ever being revealed, in others the cause has been subsequently discovered as a ruptured appendix abscess or suppurating tube by the residual local collection of pus left after the subsidence of the more general trouble. Exactly which cases should be dealt with in

is shown in the accompanying illustrations, and although perhaps a trifle formidable and complicated in appearance is really in actual practice very simple and efficient. The main principle aimed at is to allow fluid of a fairly equable temperature to run into the rectum at a certain slow rate, the rate being adjustable to the absorbent powers of the rectum of the particular patient.

The essential points are —

- 1 A simple regulator this is provided by the ordinary screw pinch cock.
- 2 An indication of the rate of flow visible to the nurse or other attendant. The glass dropper B serves this purpose and is easily prepared by fixing a glass tube drawn out to a narrow neck into the lumen of a slightly wider tube—to allow of steady flow and for the escape of intestinal gases it is important that either the thinner tube should not accurately fit the wider, or that the latter should be pierced by a small hole as at "a".

3 A rectal nozzle that is easily introduced does not irritate the rectum and is not readily kinked or blocked. An ordinary vaginal glass douche nozzle bent to an angle of about 135° fulfil these conditions.

4 A height of fluid which will suffice to overcome the intra-rectal pressure in considering this height it must be understood that the height of the vent hole in the glass indicator C above the rectum is the height of the column of fluid acting upon rectum.

The rate of flow which we have found usually well retained is about 12 oz per hour. The number of drops necessary to give such flow will depend upon the indicator in use and must be determined experimentally for each indicator, those in use here deliver 12 oz per hour at a drop rate of 60 to 80 per minute.

For greater convenience a gauge glass attached to the inside bottle A is fixed to the side of the hot water jacket B and at the end of an hour the attendant can at once say how much fluid has passed from the bottle A into the rectum can alter the rate of drop in accordance with the information so obtained.

For the first hour it will be found that the screw regulator requires one or two adjustments, but after that the rate of flow remains satisfactorily constant. In the equable climate of Rangoon the regulation of the temperature of the fluid requires no very special arrangement, but should it be considered necessary the regular temperature of the fluid passing into the rectum could, I think, be readily obtained by means of covering or surrounding the India-rubber tubing with one or two small hot-water bags as the tube passes over the mattress of the bed.

One minor point is of importance and that is to place a pad under the knee of the leg under which the tube passes on its way to the rectum. If this is neglected the weight of the leg presses on the tube and stops the flow of fluid.

It must be remembered that the fluid is being properly given it will be retained and absorbed, as Murphy has pointed out if the fluid is returned it is certain that it is not being properly given. The details are simple, but to obtain the best results they must be carried out with precision.

Any failure of the fluid to pass into the rectum owing to kinking of the India-rubber tubing, blocking of the nozzle by faecal accumulation, or by the height of the indicator above the rectum being insufficient to counter-balance the inter-rectal pressure is shown at once by the filling of the lower portion of the indicator with fluid and its overflow from the hole "a".

In this hospital the regular administration of fluid per rectum in the way has taken the place of intravenous saline transfusions in all save the few cases in which it is necessary to bring about an immediate and very rapid restoration of blood-pressure, such as cases of large hæmorrhages from wounds, etc.

In a few cases treated this rectal infusion of saline has been rendered difficult or impossible by—

- (a) restlessness of the patient,
- (b) blocking of the rectum and lower bowel by faeces.

To avoid "a" we frequently give morphia immediately after the operation, one dose has usually proved sufficient, for one of the great advantages of the treatment is that with the steady absorption of fluid the restlessness disappears and the distressing thirst is relieved in a most remarkable manner, "b" can be generally prevented or relieved by washing out the lower bowel with a large soap and water or turpentine enema.

The "rationale" of the treatment now known as the Fowler-Murphy treatment is, I think, plain. The most pressing dangers of acute general peritonitis are—

- (a) Shock due, in part at any rate, to the great increase in capacity of the splanchnic vascular area dilated by the inflammation.
- (b) Absorption of bacteria and their toxins from the large lymph sac formed by the peritoneum.

The best way to combat the first is to supply the vascular system with a steady in-flow of fluid, and so provide an increased volume of blood commensurate with the increase of vascular capacity, the general blood-pressure being thus sustained.

The second danger is limited by the free drainage of the abdomen and the relief of the intra-abdominal pressure while the sitting position of the patient is not only a great assistance to proper drainage, but also prevents the accumulation of septic products in the upper half of the abdomen, from which region absorption is much more active than from the lower pelvic region.

I would especially like to bring the above-mentioned treatment to the consideration of Civil Surgeons in outlying districts who as we all know by experience are frequently called upon to treat cases of acute peritonitis under circumstances of great difficulty.

To them, I believe, the Fowler-Murphy treatment will be of the greatest use. The incision for the insertion of the tubes can be made under the influence of a local anæsthetic and the subsequent treatment carried out by some such apparatus as is described in this article.

I would point out the apparatus required is in no way complicated, all the necessary parts can be, and in our case are being obtained or manufactured locally. We have in the Rangoon Hospital three sets of apparatus which are in more or less constant use, and with the exception of the screw pinch cock all the other parts of the apparatus have been made by the hospital workmen.

That a less clumsy apparatus can be made by more skilled workmen is apparent to all, but the

one depicted in the diagram has efficiently stood the test of work for a year and is capable of being quickly made by the ordinary workmen found in the bazaar.

When once the apparatus has been properly started in working order and the number of drops per minute regulated no very skilled further supervision is necessary. It requires frequent inspection and possibly some regulation of the number of drops per minute, but this can well be carried out by a nurse, an hospital assistant, or even a compounder.

Although it is not my purpose or intention to endeavor to impress this treatment upon the profession out here by citing statistics—such can be read any day in any home journal, our results do I think amply support the majority of such claims and statements in order to illustrate the scope of this method, I venture to append a few very brief notes of the last half dozen cases so treated in this hospital.

ILLUSTRATIVE CASES

Mg Po Myin, male, 27, Burman. Admitted on 1st February, 1910.

Fever of some days' duration. Ran the usual course of a severe typhoid symptoms of perforation developing upon the evening of the 23rd February. Abdomen opened 1 A.M. on 24th February. Perforated ulcer closed. The whole of the lower part of the abdominal cavity infected and no evidence of limitation by adhesions. Drainage tubes inserted and rectal irrigation started. Died on 28th February, 1910, but no signs of general peritonitis developed and the man died of the severe typhoid infection.

Post mortem—The general peritoneal cavity free from infection, localized peritonitis of the lower one fourth of the abdomen, chiefly adhesive.

Mr F C K, European, age 27. Admitted on 4th February, 1910. Discharged "cured" on 11th March, 1910.

Symptoms—Those of a sub acute peritonitis of the upper one third of abdomen.

Diagnosis—Leaking liver abscess under surface of liver.

Operation showed adhesions and great thickening about the duodenum. Liver and gallbladder healthy. The diagnosis was altered to leaking duodenal ulcer and a posterior gastro-jejunostomy performed. Owing to the distension of the bowel and adhesions the operation was difficult and prolonged. With rectal irrigation, the patient made a good recovery from the shock of the operation, and no thirst was ever complained of, although nothing save occasional sips of water was allowed by the mouth for three days.

Ma Kjaew, Burmese female, aged 22, married. Admitted February 10th, with acute general peritonitis, and history pointing to a ruptured tubal pregnancy of three days' duration.

Laparotomy—Abdomen distended with mixture of blood and blood clot which was removed. The left Fallopian tube was found distended and ruptured. Signs of acute general peritonitis. Three drainage tubes inserted one in middle line, one in each flank. Patient placed in Fowler position with continuous rectal irrigation. Patient's condition after return to ward was very bad, but she quickly rallied and in 48 hours was out of danger.

Tubes were removed on fourth day. Seven days later patient again suddenly developed symptoms of acute peritonitis with great pain, and marked abdominal distension presumably due to rupture of a collection of pus into abdominal cavity. Under local anæsthetic

wounds were opened up and three tubes again inserted. On opening abdomen a mixture of pus and peritoneal fluid escaped. Fowler's position, continuous rectal irrigation. Patient rapidly recovered and left hospital in a good state of health. No search was made for the source of the pus nor was any attempt made to cleanse the abdominal cavity. The second operation was done in bed with patient in Fowler's position.

Hindu, male, age 35, cooly. Admitted 6th March 1910 for constipation and abdominal pain of three days' duration.

No vomiting. General condition satisfactory. Distended coil of intestine visible. Intestinal obstruction, cause uncertain, was at once diagnosed, and operation performed.

The first incision was in the middle line, but upon exploring the abdominal cavity, it was found that the obstruction was in the large bowel on the left side, and so a second incision was made over the seat of obstruction. Volvulus of the sigmoid was found and reduced, and as the walls of the gut appeared rather seriously damaged, the large bowel was opened and fixed to the abdominal wall.

The operation was more prolonged than was advisable, and after operation the man's temperature rose to 103° and rate of pulse from 64 to 120, 130, but with the rectal absorption he was free from thirst and general discomfort, and upon the second day his pulse had dropped to 100 and he was out of danger.

A R, Hindu, male, 42, compositor. Admitted on 25th February, 1910, for pain all over the body and general malaise of several months' duration. During the night of the 27th he suddenly developed acute abdominal symptoms. Pulse previously 80—90 being 138, and barely perceptible with acute pain in the upper part of the abdomen.

Upon the 28th he had improved a little, but his general condition was so bad that it was thought best to postpone operation particularly as the signs were limited to only the upper portion of abdomen. Upon the 6th an operation was performed for what was thought an abscess about the lower surface of the liver.

Typical fat necrosis was found and the pancreas drained. The operation was a serious one as the man's general condition was very poor, but the rectal irrigation was well retained and the man made an excellent recovery.

Mr Kha, aged 45, admitted February 14th, 1910, in a very bad state of health with large sloughing fibroid polypus of the uterus. Not only the polypus but the cervix also was much ulcerated and so indurated as to give rise to a suspicion of cancer vaginal hysterectomy—24 hours after operation patient developed signs of general peritonitis and appeared to be in a dying condition. Fowler-Murphy treatment was at once commenced, and a large tube introduced through the wound left by the hysterectomy. The peritonitis rapidly subsided and the patient made a good though somewhat prolonged recovery.

Intussusception—Two cases aged 25 and 35 years respectively. The first case was of three days' standing but the symptoms were not urgent and so much resembled dysentery that an outside practitioner had diagnosed that disease, a rectal examination rectified the diagnosis. On opening the abdomen the intussusception was readily reduced and the patient made a rapid recovery. The second patient was admitted with urgent symptoms of intestinal obstruction of five days' duration and with general peritonitis. The cause of obstruction was undiagnosed, but on opening the abdomen a gangrenous intussusception was found, this was brought out of the abdomen, the gut above cut across, and a Paul's tube inserted, the patient did not rally and died in a few hours. In both cases the intussusception was of the ileo-cæcal variety.

Intussusception of the bowel is a rare form of intestinal obstruction as met with in the practice of the Rangoon General Hospital. Such cases as have been

met with have occurred chiefly amongst adults, in an experience of some nine years at this hospital. I can only recall one case occurring in an infant, and although doubtless cases do occur amongst infants, which are allowed to die untreated, still I feel sure this form of intestinal obstruction is comparatively rare. Fitz Williams in the *Lancet* of March 1908, urges the view that intussusception is caused in infants largely by errors of diet. He states "it is a matter of interest from the point of view of the possibility of a too generous diet being responsible for the condition to note that intussusceptions occur almost without exception in fat well developed and healthy children, and that in 34 cases in which it was possible to obtain a history of the cause in 25 what may be termed errors of diet were mentioned, the remaining nine were due to mechanical causes." In Germany where breast feeding is far more general and more strictly carried out than in England, intussusceptions in infants are relatively very rare. The same condition largely holds good in Burma, every mother unless incapacitated by illness suckles her child, and continues to do so often for two or two and a half years. It would appear then possible this may be the reason for the comparative rareness of intussusceptions amongst infants in this country.

Volvulus, three cases, aged 20, 35 and 60 years respectively

The first case was a volvulus of the small intestine, with obstruction of five days' standing. The obstruction was relieved but the patient died 36 hours later of gangrene of the intestine. In the second and third cases the usual form of volvulus of the sigmoid flexure was present.

In the second case there had been total obstruction of the intestines for three days, the abdomen was much distended but there was no vomiting. The abdomen was opened in the middle line without the cause of the obstruction being diagnosed.

As a volvulus of the sigmoid flexure was at once apparent, this incision was closed and a second one made over the position of the sigmoid flexure. The gut was punctured and then drawn outside the abdomen, as a portion of the bowel was gangrenous, this was left outside the abdomen as a Paul's tube tied in. The patient did well, and though two subsequent operations were necessary to close the fecal fistula left, the patient made an excellent recovery and was discharged from hospital with his abdominal wounds securely healed. In the third case the obstruction had been complete for two days and the sigmoid flexure was enormously distended, the patient had been operated on one year previously in this hospital for an exactly similar condition. An incision was made in the left semilunar line, the volvulus punctured and then untwisted, and the lower part of the sigmoid loops of intestine was sewn to the abdominal wound with a view to preventing any future volvulus occurring. The patient made a rapid recovery.

In my opinion the number of the cases of this form of obstruction has been unusually few this year, for volvulus is a fairly common accident amongst natives (especially natives of India) in this town. Except for rare instances in which the small bowel has been involved the variety met with has been invariably that affecting the sigmoid flexure. It is singular that as a rule the symptoms are not particularly acute, patients rarely come to hospital before the third day of obstruction, pain is not a prominent feature and vomiting is more often absent than present. The leading symptoms are complete obstruction with very marked abdominal distension, the distension being chiefly in the left sub costal region.

The results of treatment have been very encouraging much more so than European statistics would lead one to expect. The most important points in the treatment are, I believe, the speedy recognition of the cause of the obstruction, if possible, before the abdomen is opened, certainly before extensive handling or disturbance of the abdominal contents has taken place and a properly

placed incision. No attempts to deal with the volvulus except through a properly placed incision should not be made, i.e. after opening the abdomen in the middle line the volvulus is found to be of the sigmoid variety, the original incision should be abandoned and a new one made low down and well to the left of the left rectus muscle. No attempt at reduction should be made till the distended condition of coil of gut has been relieved, and the gut itself brought out of the abdomen. As the contents are largely gaseous a long small bore trocar will relieve the distension sufficiently to allow the coil to be brought down and outside the abdomen once outside. The bowel can be safely and completely emptied by a small incision. Should the patient's condition be fairly good, the bowel should be fixed to the abdominal wall since recurrence is by no means infrequent, but in attempting this the prolongation of the operation should not be allowed to entail any risk to the patient's life.

Organic Stricture, one case—The patient was a sailor, aged 20 years. Complete obstruction had occurred eight days previously at sea, and he was operated immediately on arrival in port. The abdomen was enormously distended, the patient had fecal vomiting and signs of general peritonitis. The obstruction was found to be due to an organic stricture in the wall of the descending colon completely occluding the gut, the colon was cut across and brought outside the abdomen. A Paul's tube being tied in, three drainage tubes were placed in the abdominal cavity, the patient, however, died in a few hours. This patient had suffered badly from syphilis two years previously and the stricture appeared to be due to cicatricial contraction following on an annular ulcer—a microscopic examination bore this view out.

Strangulated Hernia—16 cases of which 5 died and 11 recovered

1 Complete obstruction of less than 24 hours' standing, 11 cases, 1 died, 10 recovered

2 Complete obstruction of less than 3 days' standing, 1 case, 1 died

3 Complete obstruction of less than 4 days' standing, 2 cases, 1 died, 1 recovered

4 Complete obstruction of less than 6 days' standing, 1 case, 1 died

5 Complete obstruction of less than 8 days' standing, 1 case, 1 died

The patient who died in class (1) was suffering from acute tuberculosis of the lungs and died from an exacerbation of this disease four days after the operation. The intestinal obstruction had been satisfactorily relieved. The condition of the patients in the other classes was an admission in each case very bad. In one case 2 feet of gangrenous gut was resected, the patient, however, died in a few hours.

Two cases of obstructed incarcerated hernia with symptoms of intestinal obstruction were operated on. The ages of the patients were 48 and 63 respectively. One died and one recovered. The patient who died was suffering from a very large hernia of many years' standing, it contained amongst other intestines, the caecum and vermiform appendix. The patient's health was very poor, and he died 14 days later when all symptoms of intestinal obstruction had passed off. The other patient, though old and feeble, recovered from the operation rapidly.

Intestinal Obstruction from Bands—Four cases with one recovery. The recovery took place in a patient aged 16 years, in whom the ileum was obstructed low down by a band, the obstruction itself being of three days' standing. In the other three cases the obstruction was in two of six days' and in the third of seven days' standing, in the last case a loop of gut one foot long was gangrenous, the loop was brought out of the abdomen and the gut at the base joined by a lateral anastomosis, but the patient died in 36 hours.

In all, 31 cases of intestinal obstruction have been operated on with 16 recoveries and 15 deaths, these results bear out the view of Moynihan that "The sur

gery of intestinal obstruction is disheartening work, and that few surgeons in a series of cases of over 20 can show a mortality of less than 50 per cent "

In two cases of strangulation resection of the gut was performed, both patients died in a few hours. Any operation on the intestine itself in cases of acute obstruction is to be depreciated, the patients are not in a condition to stand anything but the shortest possible operation and the gut itself is in the worst possible condition for suturing. It is wiser to limit the scope of the operation as far as possible to the relief of the obstruction and the evacuation from the distended intestine of its toxic contents. This point is of great importance, if the contents of the obstructed intestine, after relief of the cause of obstruction are allowed to pass along into the healthy intestine, much of the contained toxic material will be absorbed and the patient's chance of recovery considerably lessened. For the same reason it is a good practice to wash out the stomach before the operation, especially if vomiting is present, in intestinal obstruction the patients are dying from absorption of the excessively toxic contents of the obstructed bowel, and anything that will lessen this absorption is of the greatest value.

As regards after treatment continuous rectal irrigation combined with the sitting posture (Fowler-Murphy treatment) has proved of the greatest possible advantage. Whenever general peritonitis is present, this treatment should be combined with free abdominal drainage, a

up intestinal contents. Whatever the cause, too much reliance must not be placed on a slow pulse rate in cases of this nature.

Again, during the operation the appearance of the strangulated gut may be most misleading, but quite obviously lining may become gangrenous after the relief of the obstructing cause, this occurred in a case of volvulus of the small intestine. Such post operative gangrene is particularly liable to occur in cases of strangulated hernia which have been subjected to the well meaning but energetic attention of the patient's friends.

Post operative gangrene, it seems likely, is caused by thrombosis spreading from the larger mesenteric veins to the smaller venules, or to embolism of the arterioles situated in the distal part of the mesentery. On relief of the obstruction and restoration of the blood current in the larger branches of the mesenteric arteries emboli already formed in these vessels may be swept onwards and plug the smaller arterial arches in the free border of the mesentery. In support of this view, I may mention one case of post operative gangrene showed post mortem scattered areas of gangrene along the free mesenteric border in a manner that could only be explained on the above hypothesis.

For these reasons it is wiser to look on Intestinal Obstruction in a Native as a much more severe illness both generally and locally than a similar catastrophe happening to a European.

OPERATIONS	Number of cases	OPERATIONS FOR ACUTE INTESTINAL OBSTRUCTION																REMARKS					
		5		10		20		30		40		50		60 & above		Result							
		Discharged	Died	Discharged	Died	Discharged	Died	Discharged	Died	Discharged	Died	Discharged	Died	Discharged	Died	Discharged	Died						
<i>For Intestinal Obstruction Acute</i>		M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Imperforate anus	2			1	1																	1	1
Intussusception	2					1							1								1	1	
Volvulus	3											1									1	1	
Organic stricture	1											1				1				2		1	1
By bands	3																				1	1	
By bands, with re section of Gut	1					1							1	1						1		1	1
<i>Strangulated Hernia</i>																1						1	
Herniotomy with radical cure	15									3	1	5	1	2	2	1				11		4	
„ with re section of Gut	1														1						1		
„ for obstructed In carcerated Hernia	2														1	1				1	1		
Total	30			1	1			2	2	3	1	6	3	1	2	5	3			16	12	2	

drainage tube in each flank and one in the middle line reaching well down into the pelvis.

In cases of intestinal obstruction amongst natives of the East, it is often most difficult to form a correct estimate of the patient's condition, both the pulse and the aspect of the patient are untrustworthy. For instance in a case mentioned above of strangulation of supposed six days' standing the patient's general aspect was so reassuring and the pulse both in rate (88) and volume so good that the history was disbelieved and the case looked on as one of recent origin. In consequence intestinal anastomosis was carried out, the patient died, however, about 12 hours later, after three or four loose motions, death being due to intestinal toxic absorption after the operation.

This dissembling of the true gravity of the case may be due to the taking of opium before admission into hospital or very possibly the slowing of the pulse rate may be attributed to toxic absorption from the dammed

A—Diagram of saline container

"a" an ordinary quart bottle inverted (the bottom having been knocked off) and surrounded by a tin hot-water jacket "b"

"b" a tin surrounding the inverted bottle and forming a hot water jacket. This tin is covered with thick felt "c" rubber connection from "a," one limb passing up to the glass gauge "d"

"d" a piece of $\frac{1}{4}$ inch diameter glass tubing graduated, so that each division represents 4 oz of fluid in the bottle "a"

B—Diagram of glass dropper

The thinner of the glasses can be fitted and held firm within the wider by means of India rubber tubing, forming a collar at "b" by which the thinner tube is gripped.

"c" a small hole in the wider tube

C—Ordinary screw "pinch cock" used as a regulator

ON THE STERILIZATION OF SKIN BY IODINE

By A F HAMILTON, M B, F R C S,
CAPTAIN, I M S

THE Associate Editor of the *Indian Medical Gazette* for Bombay having very kindly asked me to write an article for the Operative Surgery number of the journal, I decided on this short preliminary note regarding the surgical sterilization of skin by Iodine. The short time—two months—during which I have worked in the David Sassoon Hospital, Poona, does not warrant my giving readers of the *Indian Medical Gazette* a full idea of the surgical work performed in the hospital, hence I have chosen the above named subject as it is one I am giving a thorough trial, and my experience of the method, as employed in roughly 70 cases, is so satisfactory that I feel justified in recommending it to other surgeons, and especially to those working under the conditions met with in up-country stations.

Sterilization of the skin by Iodine solution is

The following is the method of application of the solution —

1 A few minutes before the patient is brought on to the table the field of operation is thoroughly painted over with the solution and allowed to dry.

2 Immediately anaesthesia is complete a second coating is given, and then the operation is commenced.

3 On the completion of the operation the line of sutures is lightly painted over with the same solution.

The following operations have been performed, using this method of skin sterilization during the past few weeks. A large number of operations for already septic conditions, such as abscesses, discharging fistulae and sinuses, etc., were also performed, but they are not included in the table. I may mention that these cases do well as regards the non-infection of the surrounding skin. No ill-effects have been observed with the exception of one slight case of superficial dermatitis. Naturally no operations for vesical calculus or operations on the eye appear in the table.

NATURE OF OPERATION	No	RESULT
Radical operation for hernia	7	All healed by first intention
Radical operation for hydrocele	7	Do do
Removal of ovarian dermoids	2	Do do
Laparotomy for other purposes	2	Do do
Removal of tumours	8	Do do
Amputations	8	1 case suppurated
Excisions of joint	1	Healed by first intention
Operations on bones	2	Do do
Operations in fistulae, etc	18	Do do
Operation for varicose veins	1	Do do
Suprapubic cystotomy, for enlarged prostate	1	Do do
Aspiration of knee joint	1	Do do
Minor operations	12	Do do when clean at the outset
TOTAL	70	

no new method, it has been tried by surgeons in England and on the Continent for some years past, but the method has not gained the widespread attraction of surgeons that its excellent merits deserve.

At the David Sassoon Hospital we first used a solution of Liq Iod. Fortis, methylated spirits and water in varying strengths. The results as regards aseptic healing of the wounds were excellent, but unfortunately it caused much discomfort to those around the operating table, and frequently one had to desist for a few minutes, after commencing an operation, in order to allow of the effects of the irritating properties of the Iodine to pass off. Lately in place of the methylated spirit we have used rectified spirit—the result was all that could be desired—no unpleasant lachrymation or irritating effects of any kind—and no impairment in the sterilizing action of the solution.

The exact formula we use is as follows —

Liq Iod. Fortis	3ii
Rectified Spirits	3iii
Dist Water	3iii

Remarks — Of the operations for hernia, two were performed by Lieut-Colonel J B Smith, I M S, in the Jacob Sassoon Hospital. Of the operations for amputations one suppurated badly. This was performed for moist gangrene of the foot, and the cause of the suppuration could not be ascertained. The temp. in a perfectly normal course, but on the 10th day when the stitches were to be removed, I discovered to my horror that the lateral flaps were bathed in pus and most of the stitches had cut out. There was absolutely no constitutional disturbance during this extensive suppurative process, and one cannot blame the skin any more than the ligatures, swabs, operators and assistants' hands, etc., for being the cause of the trouble. The operations for hydroceles were distinctly gratifying as the scrotal region is notoriously a "dangerous" one from an aseptic point of view. Of the operations for hernia one was acutely strangulated. It is to the acute abdominal emergencies that this method gives such admirable results, for as a rule neither the patients' general condition nor the state of the tissues over the site of the operation allows of

thorough scrubbing and cleaning by the ordinary method

In conclusion, I may add that there is a very great saving of time and material by using this method as compared with the ordinary "wet" one. There is none of the troublesome "preparatory" cleaning of the skin overnight, with the compresses gauze, wool, etc., that one associates with the older method. Shaving of hair over the site of the operation is not necessary, but I prefer to have this done as the appearance from an æsthetic point of view is distinctly improved by this procedure.

I have every confidence in this method of skin sterilization and intend to use it to the practical exclusion of any other method. It is efficient, economical and simple. The whole process can be carried out in a few minutes under one's immediate supervision—its efficiency has been proved by numerous observers, its cost is but a fraction of that entailed by the former methods, and in regards simplicity it would be difficult to conceive of any process to rival it in this respect.

I feel confident that as time goes on and the method becomes more extensively used, it will command the attention of every operating surgeon.

THE SURGERY OF THE FEMALE PELVIC ORGANS AND STRUCTURES

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This branch of Surgery had made very little progress in Bombay when the Sir Dinshaw Petit Hospital was first opened in March 1892, and the number of beds (20) has now become inadequate for the needs of the hospital. At that time, the big operations on the uterus and adnexa were often prohibited by the general practitioners, the idea being that the native women of India had not sufficient stamina to withstand the shock of the operation and this is true to some extent, but it is more often because they have delayed so long, and the health is lowered by prolonged suffering, by pressure effects, by malaria and other intercurrent complaints by drugging (especially by ignorant hakims who persuade the poor women that they can dissolve the tumour) and by want of proper food and attention to the systematic functions. Operations are sometimes done with albumen present, but when the pressure is removed, this soon disappears if degenerative changes have not set in. Successful operations have also been done in patients suffering from valvular heart disease and been followed by marked improvement in this condition. With regard to the hakims, a notable instance of "a score" occurred many years ago. A lady had a cystic tumour and it was decided to operate. The patient consented after being under a hakim's treatment for a long time and after having tried

all the chief practitioners' treatment, all arrangements had been made for the operation when the night before the hakim begged to be allowed to make a final trial and did some manipulation per vaginam which was followed by a gush of fluid and the tumour disappeared. The chagrin of the operator may be imagined when he arrived the morning of the operation and was told his services were not required as the hakim had *dissolved* (a favourite word) the tumour the night before. It was probably a parovarian cyst. It is a fact that confidence in abdominal pelvic surgery in Bombay was first gained by success in Porro's operation, and on that one or two extra peritoneal operations on large myomatous tumours gave further confidence. A few successful intra-peritoneal operations led to a regular acceptance of this class of surgical operations, but there is still room for improvement because the patients are unwilling to put it to the test until they have exhausted all other means of treatment, while many of the general practitioners still encourage them in those ideas. If they would come for operation early in the course of their various diseases better results would be obtained. It is very distressing, for instance, to have to deal with a large ovarian cyst which has been frequently ruptured and which has contracted adhesions to the different structures with which it has been in contact. A large number of women come to hospital and the O. P. Department on account of sterility, and many of these have been treated with future success by dilatation, which is simple enough, but has done more to enhance the reputation of the work than any other class of surgical treatment. A certain proportion of unfortunate women also have come under successful surgical methods for vesico-vaginal fistulae some of which have been extensive, and these also have had a beneficial effect upon the public estimates of surgical results.

There are many ways in which operations in India are at a disadvantage. Owing to the religious prejudices of the people no *post-mortem* opportunity of seeing the causes of failure can be obtained, while the instances in which an observation of a case after discharge from hospital can be continued, are also rare. Some claim is laid to originality in technique, for though the lines of these operations have been so thoroughly defined by well-known authorities that there is little margin left, it is a matter of self-congratulation in looking over the literature and text-books year after year to find that one has at least been marking time with the footsteps of those masters in Surgery who have brought Gynæcological Surgery up to its present high pitch of perfection. All who have worked at any form of abdominal surgery will probably have felt the great difficulty in this country of complete reliance on even trained native assistants. In the moment of greatest stress, the true surgical sense is liable to depart from them—the hands—the instruments—or the appliances are allowed to

come into contact with some unsterilised surface and septicism and even failure of the operation may result. The rigid duty of continual supervision in this respect is very wearying—batches of students, nurses and qualified assistants have to be trained to antisepticism and asepticism, and no sooner are they satisfactory than they are followed by succeeding batches who have to be again taught in the same way. Many of them as soon as they leave the sphere of strict sterilising discipline again become careless. Another risk is the atmosphere in a climate and town like Bombay, where the air is full of all kinds of irritating microbic material. In consequence of these dangers, resort has been had invariably, after the usual ten minutes or more of cleansing, the hands are sterilised with a solution of 1 to 1,000 perchloride of mercury in spirit and then rinsed in perchloride of mercury of 1 to 1,000 by all concerned at the commencement of the operation and at intervals during it. No ill effects have so far been observed. The use of rubber gloves would no doubt replace any other system, but the great wear and tear of the material in this country is prohibitive. They are, however, used in septic cases, particularly for the protection of the operator. The preparation of the patient is carried out on the same principles in every case, a preliminary treatment of antiseptic baths and a course of strychnine and digitalis are given for the first few days, if the case is not an emergent one. Many of the patients require careful feeding up. A purgative, generally castor oil, is given two days before the operation, so that the effect has passed off the day before operation. On the morning of operation the bowel is further emptied by enemata and then thoroughly irrigated with a warm antiseptic lotion (potash permanganate and boracic acid). This is a very important measure in all operations of this region, whether abdominal or vaginal. The bladder is emptied by catheter just before operation, and if there is any vesical catarrh, its cavity is also irrigated with a warm antiseptic solution (boracic acid). The general preparation of patients for these operations is so carefully laid down in modern text-books that the description of the usual routine would be of no purpose.

VAGINAL OPERATIONS

Vesico-Vaginal Fistula—The position for the operation should be the prone one with the pelvis somewhat elevated—most trying for the chloroformist but absolutely necessary for a clear view of the region. The main point is to sacrifice as little tissue as possible. The vaginal mucous membrane is therefore well separated from the bladder and the latter is first closed by Quins-Lembert sutures which invert the edges towards the bladder cavity. If the mucous membrane of the bladder prolapses, it should be kept out of the field of operation by gauze packing, and this is removed as soon as the sutures of the bladder wall have been placed and of course before they

are tied. If these are tied quickly, the prolapse is easily manipulated. The finest catgut interrupted sutures cut short and buried, are used, and the bladder is then injected with a coloured solution to test occlusion and apposition. Bleeding points are tied with fine catgut ligatures, the edges of the vaginal flap are denuded of as thin a slice of tissue as possible, and are brought together by silkworm gut interrupted sutures. Where there is tension, incisions are made away from the margins of the flaps and covering sutures of silver wire are used to reduce the tension. The vagina is well packed with iodoform sterilized gauze to lessen the effects of after-strain from vomiting. It can remain in situ for a day or two without ill effect. The patient is kept in the prone position and the catheter is retained continuously for ten days when the patient is allowed to assume the dorsal position and the sutures are removed.

Perineorrhaphy, colporrhaphy, anterior and posterior, are frequently done for prolapse of the uterus. Sometimes combined with ventral fixation—as well as for their special application. In old standing cases of rupture of the perineum Lawson Tait's operation of flap splitting is an invaluable one as it ensures very little sacrifice of previous tissue.

Operations on the Uterus—Vaginal—Dilatation and curetage call for no remarks. Polypus of the cervix is treated by denuding the pedicle of mucous membrane and snipping it through as close to the wall of the uterus as possible. In order to control hæmorrhage a silk ligature is passed from the outer vaginal surface of the cervix through the base of the pedicle and through to the outer surface of the cervix just below the pedicle. The suture is tied and left long and is useful for traction if there is hæmorrhage and when packing the cervix for the same. The mucous membrane that covered the pedicle is sutured with catgut and the cervical cavity tamponed.

Trachelorrhaphy by Emmet's method is very valuable, and a great improvement in the mental and general condition is observed in these patients soon after the operation.

Vaginal fixation of the uterus is a useful operation in some cases of obstinate retroversion in which a pessary is resented. An incision is made along the anterior vaginal wall from its reflexion over the cervix to about $1\frac{1}{2}$ inch. The structures are well denuded from the anterior wall of the cervix and uterus, taking care to separate them from the median line outwards so as to push away the ureters if they should come in the way. (1) The uterine sound is passed and the organ brought into the anteverted position. (2) The lower anterior wall of the uterus is thus exposed, and two or more stout catgut sutures are passed through it and the submucous vaginal tissue, which are tied, cut short and buried. The vaginal mucous membrane is united by interrupted silkworm gut sutures. This operation was done in one case of a young unmarried woman. The

patient married afterwards and had two children without any difficulty arising. The operation had completely cured her before marriage.

ORLIOLOGY

The general preparation of patients for abdominal section requires no remarks. Every surgeon has his own methods based on modern antiseptic principles. The same may be said of the incision of the abdominal wall. The closure of the incision is a matter of some anxiety because of the danger of hernia at a future date. With patients of India it is difficult to impress on them the great need of care for some time after the operation and the tier suture is almost invariably used. Of course some desperate cases have to be completed rapidly with through and through sutures. The tier suture does give a firm union of the different layers in the median incision, and if this is supplemented by a proper fitting belt so designed as to exert pressure over the recti muscles (the Sister of the Petit Hospital has devised a very good pattern at a small cost) there will be no danger of hernial relaxation. Unfortunately many of the women discard the belt and pay no attention to instructions, and a few of them suffer for the neglect.

The peritoneum is united by continuous fine catgut sutures, the edges of muscles and the aponeurosis are brought together alternately with catgut interrupted sutures and the skin and subcutaneous tissue are united by silk-worm gut interrupted sutures, which should pass close to the edge of the skin incision, then a little backwards and out at the lower limit of the subcutaneous tissue on one side and from below upwards in a corresponding direction on the opposite side.

This brings the deep part of the subcutaneous tissue into close apposition and prevents accumulation.

Many of our patients have a very deep layer of subcutaneous fat, but this method of suture is generally quite satisfactory. In one case of hysterectomy in a fat unmarried young lady there was extensive fat-necrosis from too tight application of sutures perhaps. Anyhow the skin wound healed perfectly, and there was no supuration, but after a time a small sinus appeared at the lower margin of the wound from which there was continuous flow of thin oily serous fluid. The wound was opened up and the subcutaneous tissue was found to be honeycombed with degeneration. It was thoroughly scraped, and after re-suturing, the case did well. After each layer of sutures are applied, the parts are washed with hot perchloride solution (1 to 2,000) and thoroughly dried before the next layer of sutures is passed.

In all abdominal operations it is most essential to protect the intestines. The Trendelenberg position should be used, and as soon as the peritoneum is opened, the bowels should be covered with a hot sterilised pad of lint and

pushed out of the way with the greatest care and the most gentle manipulation. The sponges (so called) and squares of lint, small, medium and large, thoroughly sterilised in the first instance, and throughout the operation they are handed by the nurse wrung out of hot sterilised water.

VULVAR FIXATION

This operation is done for a variety of conditions of prolapse, retroflexion and retroversion. If prolapse is associated with old laceration and eversion of the lips of the cervix or with cystocele and rectocele, the preliminary plastic operations are always done first, and some time after, the fixation of the uterus.

The sutures are preferably silk-worm gut and are passed through the anterior wall of the uterus well below the fundus and then through the peritoneum and abdominal walls. They are tied last of all when the suturing of the abdominal wall is completed. A pipe stem roll of gauze is placed along the incision to prevent the sutures cutting through to any extent, as was found to be the case in earlier operations. The suturing of the uterus below the fundus has also been very satisfactory as regards future results of pregnancy. Several cases of this occurrence have followed after the operation and no distress had been felt during gestation. The fundus is left free to expand, and the result of the fixation is satisfactory so far as the displacement is concerned.

REMOVAL OF DISEASED APPENDAGES

This operation is frequently required, and in each case the amount of interference must depend upon the amount of the disease. The abdominal method is generally preferable, and the extent of the perimetritis will decide whether the removal of the body of the uterus should be included. A great variety of conditions may be found and the adhesions vary with the time that has elapsed. Most of the cases come under observation as a last resource after months of suffering and the adhesions may then be very firm. In separating the ovaries and tubes the finger should be passed well down behind the broad ligament and separation carried out by breaking down the adhesions in the direction of least resistance from below upwards. In the earlier stages of disease benefit has lately been found to result from preliminary vaccine treatment when the infective organism can be detected. The patient is thus able to tide over the acute stage of the disease until a favourable time for operation. An opsonic estimate would be useful to test the effect of the vaccine. This treatment is also particularly indicated where pelvic abscess and sinuses have formed.

HYSTERECTOMY

Is principally done for fibroid tumours and carcinoma of the body of the uterus. The partial or subtotal or supravaginal hysterectomy is generally done for fibroid tumour. In

the year 1892 two or three cases of very large tumours were treated by the extra-peritoneal method and the stump of the cervix was placed at the lower margin of the abdominal wound as in Porro's operation. The intra-peritoneal method was afterwards worked out independently. The technique of this operation is simple and is easily understood from the description given in the textbooks, but the manual skill, resource, endurance, and surgical ingenuity required in cases of large tumours and various complicated cases is very great. If the ovaries are healthy, they may be left in cases of fibroid tumours, but the tubes should be resected as they probably contain infective material. Some of the cases of myoma of the uterus for which hysterectomy was done, were very large, as may be seen from the accompanying pathological excerpts. One of the cases, a multiple myoma of the uterus, size 14 in \times 12 in, weighing 23 lbs, was making excellent recovery, but developed tetanus on the fourth day. Catgut ligatures were freely used, but there was also a small sore near the nostrils and from the time of onset it was suspected that the infection occurred before admission into hospital.

Total hysterectomy or pan-hysterectomy is an extension of the partial operation and is applicable to cases of large tumours invading the cervix and carcinoma of the body and cervix uteri.

Wertheim's method for carcinoma is a very thorough one. After ligation of the ovarian and uterine arteries the peritoneal flaps are separated from the anterior and posterior surfaces of the cervix and held up by long forceps, the vagina is put on the stretch clamped by powerful angular forceps and cut through. The cut edges of the vagina are then sutured and the sutures left long as a guide and to hold up the vagina when required. The whole of the subperitoneal pelvic area can now be inspected and any enlarged glands removed and the uterus inspected. The peritoneal edges of the divided broad ligaments are then sutured quasi-Lembert and peritoneal margins of the bladder and Douglas's pouch flaps are sutured to the cut edge of the vagina and the ligatures of the vaginal edges can be used for this step. These sutures are again left long and passed through the vagina to an assistant who exerts enough traction to invert the peritoneum. A gauze drain is passed through the vagina, which thus forms a funnel for drainage. This method was witnessed at St. Elizabeth's Hospital, Vienna, and the technique explained by Prof. Wertheim himself. The operation is facilitated by separation of the cervix from the vagina as a preliminary to the abdominal operation though it is more prolonged.

Among the fatal cases of this operation for carcinoma uteri, one was a large tumour which broke away on manipulation and a separate metastatic tumour was found in the right hypochondriac region.

OVARIOLOGY

Is, as might be expected, the most frequent abdominal operation. The tumours are mostly

of a very large size, adherent to various structures and the patients much broken down in health. They are prepared as well as possible for the operation by a course of cardiac stimulants, good food, and relief of tension by aspiration. Under the circumstances, the statistics cannot possibly compare with those of European countries.

One tumour contained 96 litres of thick glinous fluid, another 16 pints of broken down papillomatous material which was evidently septic by the smell, while another had been tapped 35 times in Persia and contained 16 pints purulent looking material.

Two cases were carcinoma of the ovary, both about the size of a man's head, the age of the patient in one was 31, that of the other 62 years.

Twisting of the pedicle was also met with in a few cases. This complication may occur either gradually or immediately, and in the former case there is progressive peritonitis of a subacute kind, while in the latter it is acute.

The pedicle may be either broad or narrow and in the latter case it may be very long. A case was met with in private practice which was variously diagnosed as floating kidney, tumour of the mesentery and a myoma with a long pedicle, the latter opinion being given by an eminent London Surgeon. It eventually increased in size and was diagnosed correctly as an ovarian cyst and immediate operation advised. The patient and her friends unfortunately procrastinated and a fortnight later an urgent operation was done for the usual symptoms of acute peritonitis from twisted pedicle. The bowels were extensively affected and in some parts were almost gangrenous.

The twisting has generally been observed to be from right to left and may be caused in the smaller tumours by the mechanical rotation of the tumour. In other cases, especially those of large size and with broad pedicles, it is apparently caused by the growth of the tumour and the reacting pressure on it from the abdominal walls. Even if removed successfully, the peritonitis is likely to persist and drainage should always be adopted.

SPLENECTOMY

This operation was first performed under peculiar circumstances. A young woman of about 20 was seen for urgent symptoms of intestinal obstruction. There was a tumour in the right iliac and hypogastric region. The diagnosis was speculative that it might be a pelvic tumour of some kind, accompanied with plastic effusion and adhesions which were constricting the bowel. On incision a dark mass was exposed which bled profusely when a small incision was made in it. It could be detached from its extensive adhesions and was found to be a floating spleen with a very long pedicle through a loop of which the intestine had slipped and was constricted. The spleen was removed, and after a few anxious

THE SURGERY OF THE FEMALE PELVIC ORGANS AND STRUCTURES

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1—A LARGE FIBRO MYOMA



2—A MULTILOCULAR CYSTIC TUMOUR



3—A LARGE PROLIFERATING GLANDULAR CYST



4—CANCER OF CERVIX UTERI (A LARGE CAULIFLOWER
LIKE GROWTH SURROUNDS THE EXTERNAL OS UTERI)

days the patient began to recover and was seen a year or two afterwards in perfect health. The history of the case and blood counts have been recorded elsewhere.

Another case is referred to later on and another was successfully done for a large hard enlarged spleen which extended down to the pelvic region which was causing the greatest distress from pressure on the diaphragm and abdominal distension.

The most important point about splenectomy is the control of hæmorrhage, not so much from the pedicle as from the fine adhesions to the posterior wall of the abdomen and the under surface of the diaphragm. All these points must be carefully searched for and either twisted or ligatured.

UNUSUAL CASES

In abdominal surgery one is always likely to find surprising conditions of which the following are notable examples. In many such cases when once the incision is made for an exploration, it is difficult to close, and one has to go on with the operation.

Retroperitoneal Lipoma —The patient was a very old looking woman who gave her age as 50 but looked much older. The duration of the tumour was only one year and weighed 28lbs 4 oz. The bowel was adherent over the tumour and was injured. The patient died of shock 36 hours after operation.

Sarcoma of the Mesentery was found in another case of exploration. Nothing was done and the abdomen was at once closed, the case being inoperable.

Double broad Ligament Cyst —About the size of a cocoanut. First the left and then the right were enucleated. A sponge was missed in this operation and never found, but the patient made a good recovery, so there was probably an error in counting.

EXTRA-UTERINE GESTATION CYST, RIGHT SIDE

This extended into the right broad ligament and upward into the right umbilical and epigastric region. It was about 7 inches in diameter. The contents had broken down into which red gumous material. The sac was adherent to the cæcum and other structures. It was sutured to the wall of the abdomen and drained. Recovery good.

Ovarying Myoma —About the size of the adult head. The patient had refused operation 3 years previously, but was obliged to seek relief from pelvic pressure symptoms. Recovery good.

Bloody Cyst of the Spleen —This was only discovered on abdominal incision. The tumour was considered to be a cystic tumour before operation, possibly a hydatid. Splenectomy was successfully done by my colleague, Major Evans, during my absence.

Carcinoma of the Ovary —This occurred in a young girl of 17. The abdomen was distended by a tumour about the size of 7 months' preg-

nancy which had developed in about 5 or 6 months. The abdominal walls were very tense and by examination under chloroform the cervix was found free and vaginal in type. There was no special significance in the operation. The patient did well.

8 YEARS 1902—1909

Coleotomy for	No of Operations	Deaths
Ovariectomy	60	9
Diseased Appendages (Oophoritis, Salpingitis, Pyosalpinx &c)	87	14
Cysts of Broad Ligament	22	5
Pan Hysterectomy (for Cancer and Fibroid)	52	16
Supra Vaginal Hysterectomy	19	4
Extra Uterine Gestation	8	2
Hysteropexia	26	1
	274	51

Statistics are given of the operations in hospital for 8 years. They do not represent the results of individual workers as there were several changes of medical officers for the purposes of leave and furlough. The percentages for ovariectomy and hysterectomy are high to all appearance but not when the nature of many of the cases is taken into consideration. That for diseased appendages compares well, 16.09 to 27 per cent.

TOTAL HYSTERECTOMY BY DOYEN'S METHOD, FOR THE TREATMENT OF FIBROID TUMOURS OF THE UTERUS

By J C HOEDICH IIICHSIER M.D., B.S., B.Sc.
M.R.C.P. (LOND.), I.R.C.S. (FAC)

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PRACTICALLY all authorities are now agreed that Fibroid tumours of the Uterus, when large, or causing any symptoms, should be removed, and indeed many go further in recommending the ablation of *all* such tumours whenever discovered, whether they are causing any symptom or no. As to the precise choice of operation there is still a good deal of difference of opinion, but as a general rule, when such tumours are so situated that they can be completely removed by the operation of Myomectomy, without the removal of the whole or a part of the uterus, the trend of modern opinion would seem to be in favour of this method, even though the mortality and after-results do not appear to be quite so good as those of the more radical procedure.

Where a considerable difference of opinion still exists is, as to whether it should be made a general rule to remove the whole uterus with the cervix, by the operation of Panhysterectomy, as is the teaching of an increasing number of the

leading English Gynaecologists, or whether the cervix should be left behind whenever possible, and the operation of Supra-Vaginal or Sub total Hysterectomy be made the one of choice, as is the teaching of the majority of the modern textbooks

The advocates of the more radical method claim these advantages for it —

- 1 That it provides drainage
- 2 That it gives security against unrecognised hæmorrhage
- 3 That it removes the cervix which may become septic, slough, contain unrecognised malignant disease, or become malignant later on
- 4 That there is less liability to adhesions after the operation

On the other hand the adherents of the supra-vaginal method assert —

- 1 That it is an easier operation to perform, especially in difficult cases
- 2 That there is less danger of injury to the ureters, and less tendency to the production of cystitis
- 3 That it causes less tendency to prolapse of the pelvic contents
- 4 That the primary mortality is slightly less

A careful study of all the arguments for and against each of these operations would seem to show that on the whole the operation of Total Hysterectomy has decided advantages over the other, if carried out according to the method described by Doyen, for by this procedure the operation is practically as easy as Supra-Vaginal amputation, the risk of injury to the ureters and bladder is reduced to a minimum, and as to the mortality of the two operations, a study of the available statistics shows that in the hands of skilled surgeons there is little if anything to choose between them so as this method of operating practically gets rid of all the arguments that have been advanced against Total Hysterectomy, and gives all the advantages of this method it appears to be worthy of a more extended trial

Curiously enough hardly any of the works on the subject that I have been able to consult, either by British or American Authors, contain anything at all about this operation and of those that do the majority give such a meagre description as to be almost useless. The best account that I have come across is that by Professor Herbert Spencer, in his article on Abdominal Hysterectomy in the 2nd edition of Aitbutt and Playfair's *System of Gynaecology*, and it is to this article and also to private communications from the same authority, that I am chiefly indebted for the following description of the operation which I feel sure will be found to be superior to any other method in most of these cases, and therefore I make no apology for giving it somewhat in detail in the hopes that those who are not already familiar with it may be induced to give it a trial

The patient is prepared in the usual way for an abdominal section, on the day before the operation

the vagina is douched with a 1% solution of Formalin, and on the morning of the operation, as an additional precaution it may be swabbed out with tincture of Iodine. A narrow operating table makes the operation far easier to perform. The Surgeon stands on the left side of the patient, who is placed in the Trendelenburgh position. A solution of Iodine, 2% in Rectified Spirit, is painted over the line of the proposed incision, which is placed slightly to the left of the mid-line, over the inner border of the rectus muscle, which, after division of the anterior fascia, is displaced outwards, and the peritoneum opened in the line of the original incision. It is better to open the peritoneal cavity at the upper part of the wound first if the bladder is displaced, or drawn up and the incision can then be enlarged downwards afterwards.

The uterus is seized with the hand or vulsellum and drawn out of the wound well over the pubes and held by an assistant. If it is found to be held down by the Round Ligaments these are divided after ligation in the usual manner, and if by the Broad Ligaments these are clipped temporarily near the uterus by two pairs of forceps on each side and divided between them.

The right hand of the operator is then passed into the abdomen behind the uterus and the cervix felt with the middle finger. The middle finger of the left hand is now passed in front of the uterus over the bladder and the neck of the cervix felt between the two fingers. When this has been clearly made out, the cervix is pressed backwards by the left middle finger to make it project into Douglas's Pouch and with a scalpel a longitudinal incision of about 1" is made on to the cervix opening up the vagina behind. Make sure that the opening is really into the vagina by examining with the forefinger.

The cervix is now seized with a small vulsellum and pulled out through the opening as far as possible, the mucus wiped away from the os, and the vagina divided on both sides close to the cervical reflection. A strong vulsellum is now placed on both lips of the cervix closing the cervical canal, the small vulsellum being removed, the cervix is pulled upwards and backwards as much as possible and the anterior reflection of the vagina divided. The cervix is thus freed from the vagina all round. In cutting great care should be taken to keep the scissors as close as possible to the uterus throughout. The uterus is now drawn up, the attachments become stretched and are divided, all the while keeping the scissors close to the uterus.

If the uterine arteries are seen, they may be clipped with artery forceps before they are divided but generally they are cut first and then secured. The cervix is now drawn strongly upwards and away from the bladder, which is then readily separated from it from below upwards by means of the finger protected with gauze, and the vesico-vaginal pouch opened. In some cases it may be found more convenient to divide the peritoneum across the front of the uterus above

the reflection on to the bladder and to separate the bladder from above down to a certain extent, before proceeding as above described, but usually the former method is the best to adopt.

The uterus is now only attached by the upper part of both broad ligaments which are divided from below upwards, leaving the Tubes and Ovaries behind unless these are diseased, in which case they should, of course, be removed with the uterus.

All bleeding points are now secured and under-stitched with fine silk. A purse-string suture is next applied to the peritoneum (the vagina being left entirely open). The best material to use for this purpose is floss silk, size about $4\frac{1}{2}$ threaded on a $\frac{1}{2}$ circle needle, held in a fine needle holder. This suture is passed first through the cut edge of the peritoneum in Douglas's Pouch, then through the right utero-sacral ligament, the peritoneum over the top of the fallopian tube near its cut end (not through the tube itself). The right round ligament, the peritoneum above the bladder (in two or three places). The left round ligament, left fallopian tube, left utero-sacral ligament, and thus back to the commencement. The suture is drawn tight after the parts have been dried with gauze, and all free edges of peritoneum tucked in towards the raw surface, it is then tied and the ends cut short. The peritoneum is now quite smooth except towards the centre where it is puckered in the position of the knot. The passing of the purse-string suture is aided by first picking up the cut edges of the peritoneum at intervals all round with long forceps.

The patient is now placed in the horizontal position and about one pint of hot normal saline solution may be poured into the abdomen, which is then closed by any of the usual methods, the one that I usually adopt being a fine continuous catgut suture to the peritoneum, fine interrupted silkworm gut to the anterior fascia, and Michel's clips to the skin. A sterilized gauze dressing is then applied (after painting the wound with a 2% solution of iodine in rectified spirit), and kept in place by a many-tailed bandage with perineal bands to prevent it slipping up on the abdomen. The clips should be removed on the 8th day at the latest, and the patient may get up at the end of three weeks, but not before.

I have performed 6 operations for the removal of Fibroid tumours of the uterus by this method during the past $4\frac{1}{2}$ months that I have been in charge of the Eden Hospital, and have found it so much superior to any of the other methods of hysterectomy that I had previously tried, in simplicity, shortness of the time necessary for its performance, and in the immediate after-results (as to remote after-results it is of course too early yet to judge), that I always intend to make it my routine method of operating in these cases.

The following is a brief summary of the cases—

1 K——, Bengali, aged 22 admitted 5th May 1910, for a tumour of the lower abdomen

she had noticed for the last 8 months, which is now double the size it was when first observed and is painful at times. Menstruation regular but excessive. The tumour reached to $2\frac{1}{2}$ below the umbilicus.

Operation, 9th April 1910, incision about 4in long. The uterus enlarged to the size of a small coconut by an intestinal fibroid, together with the left tube and ovary (which were diseased), were removed by Doyen's method. Abdomen closed in layers. Recovery uneventful. Discharged 16th April 1910.

2 Mrs H——, European, aged 40, admitted 17th May 1910. Last menstruation began on 6th January 1910, and was very free but no clots were passed, since that date had had complete amenorrhoea. No other symptom. Uterus was lying forwards pushed to the right by a hard tumour the size of a cricket ball lying to the left and in front. *Operation*, 21st May 1910. Incision about $4\frac{1}{2}$ in long. The uterus, the seat of multiple fibroids, the largest the size of a big mango (on the left side), and the smallest the size of a bean, removed by Doyen's method. Recovery uninterrupted, except for a small stitch abscess caused by the catgut that had been used to stitch the anterior fascia. Discharged 9th July 1910.

3 N——, Bengali, aged 40, admitted 3rd June 1910, for occasional abdominal pain. Menstruation irregular, free and painful. The tumour reached to $1\frac{1}{2}$ in above the symphysis. *Operation*, 11th June 1910. Incision 5in long (the abdominal wall very fat). The uterus containing 2 fibroids, one the size of a duck's and the other of a hen's egg, together with both tubes and ovaries which were diseased, removed by Doyen's method. Abdomen closed in layers. Recovery uninterrupted except for a stitch abscess similar to and apparently due to the same cause, as in the last case. Discharged 29th July 1910.

4 Mrs C——, European, aged 44, admitted 4th June 1910, for pains in the abdomen, and down the legs. Menstruation free but regular. The uterus was enlarged to the size of a cricket ball. *Operation*, 9th June 1910. Incision $4\frac{1}{2}$ in long. The uterus enlarged to the size of nearly 3 months' gestation, containing a degenerated fibroid the size of a tennis ball removed by Doyen's method. Recovery uninterrupted. Discharged 7th July 1910.

5 M——, Bengali, aged 32, admitted 20th July 1910, for scanty menstruation and difficulty of micturition. Tumour reached half way between the symphysis and umbilicus. *Operation*, 25th July 1910. Incision $4\frac{1}{2}$ in long. The uterus enlarged by multiple fibroids, 7 in all, the largest the size of a polo ball, the smaller the size of walnuts, together with the right tube and ovary which were diseased were removed by Doyen's method. Recovery was somewhat delayed by a small hæmatoma which formed in the centre of the abdominal wound superficial to the anterior sheath of the rectus, apparently from oozing of some small subcuta-

neous vessel, but was otherwise quite uneventful
Discharged 30th August 1910

6 Mrs B —, European, aged 38, admitted 7th August 1910, for a tumour which she first noticed 3-4 months ago, pain in the back and abdomen. Menstruation regular but free. The tumour reached to 2 in above the symphysis. Operation, 16th August 1910. Incision 4½ in long. The uterus containing 4 fibroids, varying in size from a mango to a pigeon's egg removed by Doyen's method. Abdominal wound closed in layers.

P S—This patient made an uninterrupted recovery and was discharged cured on 10th September.

A FEW REMARKS ON APPENDICITIS

By CECIL STEVENS M D (Lond), F R C S

MAJOR, I M S,

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THOUGH it may be doubtful whether cases of appendicitis are really increasing in frequency, I think there is little doubt, that they are brought to our notice more often now than before, and consequently that the disease has assumed a great public importance during the last decade. The apparent increase is probably due to more accurate diagnosis. Appendicitis has, unfortunately, become almost a household word, and there are few families who have escaped altogether.

CAUSATION

A suggestion has been recently made that the disease is infective, and due to a special, as yet undiscovered organism. As the morbid processes of appendicitis are the same as those which occur in other parts of the body, and as the appendix itself is geographically placed in such a way, as to make the natural cleaning of its cavity very difficult, I think that we must wait for a very full demonstration of special infectivity before we believe in it. On the other hand, there are, no doubt, families in which cases of appendicitis have occurred one after the other in a decidedly suggestive fashion. As regards the effects of ingested substances, foreign bodies have been often found, but they must be regarded as accidental, while faecal concretions themselves become septic foreign bodies, and no doubt precipitate attacks of appendicitis. I have removed an appendix containing a hard faecal concretion nearly as big as the last joint of my little finger*.

Here, in Bengal, cases of appendicitis occur amongst all classes of the population. So that it would be difficult to lay the blame on any special class of food. Statistics such as are avail-

able would be useless and fallacious, as amongst the Indian cases, probably only a very small proportion are ever discovered. The effects of chronic constipation as a factor in the causation of this disease are well known, and its connection with certain cases of chronic colitis is, I think, fairly established. Tubercular cases seem rare out here. I have not come across any tubercular appendices, but have met some very chronic abscesses, which I have suspected to be tubercular in character.

As a cause of a recurrent attack of appendicitis injury or trauma must not be forgotten. In one case under my charge, a fall from a bicycle against a tree trunk brought on a well-defined attack. In another case, the attack was ascribed to a blow in the groin from the corner of a table whilst a still more instructive example followed in a few hours the first coitus after confinement the patient having suffered in the seventh month of pregnancy from a severe attack of appendicitis.

ONSET AND SYMPTOMS

The characteristic position of appendicular pains and tumours is almost as well known to the lay public as to medical men, so much so, that it may be necessary to insist on the fact that appendicitis may be present, at any rate, in the earlier stages when the pain complained of is far distant from the usual appendicular region. In a very bad case when the appendix had been perforated and was afterwards found running inward and lying crossways, hanging over the brim of the pelvis, the pain complained of was epigastric and in the left hypogastric region. It was only after the lapse of some hours, that the tenderness was more clearly defined on the right side, and subsequently remained there. In another case, a lady, who had come by train, arrived in great abdominal pain, with fever, sickness and diarrhoea. She was not treated by me at this period but she told me that the pain was a very severe colic, such as she had never previously suffered, whilst her vomiting started very soon. She was, not unnaturally, treated for indigestion, and after a few days was better, but the pain did not leave her entirely. After the lapse of a week, she took a meal of curry and rice, with the result that she immediately had a relapse with fever and acute pain. On examination I found no pain over the caecum but a very decided tenderness 1½ inches below the umbilicus, and an inch to the right of this point. She had a foul breath and coated tongue. I diagnosed appendicitis in an appendix which was lying transversely towards the promontory. The tenderness persisted in this region, and nowhere else. The acute colic pain ceased, but the foul tongue and fever persisted. A blood count showed a moderate leucocytosis. Widal's test was negative. She was treated medically, and after three weeks her temperature fell, the pain disappeared and her tongue became clean simultaneously. I have no doubt myself

* This concretion was kindly examined for me by Captain H. Emslie Smith, the Chemical Examiner to Government. It consisted of Carbonates and Phosphates of Calcium and Magnesium, and gave reaction of bile. No chloresteine was detected.

that this was a case of appendicitis in an appendix situated in a highly dangerous position.

As all who have experience in abdominal surgery can say, the position of the pain as pointed out by the patient may be a very poor guide to the locality of the trouble. In a case which afterwards turned out to be a volvulus of a floating caecum, the pain was most acute in the epigastric region, whilst in another case recently operated on by the writer, the pain chiefly complained of, was also epigastric, and "round the heart." On opening the abdomen the ruptured sac of an extra-uterine pregnancy was found, the abdomen being hugely distended with blood, which fact, no doubt accounted for the precordial pain. Pain at the umbilicus is very common in many forms of abdominal trouble.

In the later stages of appendicitis, as will be shown afterwards, appendicular abscesses may be found at a considerable distance from the diseased organ.

COURSE WITH OR WITHOUT ABSCESS FORMATION

If the appendix remains unperforated and has not collected pus in its lumen, the cure or rather temporary cure may be complete in a few days, and the patient may be well enough to resume his or her ordinary work in a few days after the symptoms have entirely subsided. This is a course often followed, but not to be advised, as though symptoms may be slight, the extent of the injury must remain unknown. Other cases approaching perforation no doubt become protected and buttressed by adhesions to omentum and gut before any actual perforation takes place. It is, in all probability, in these cases that trouble subsequently arises by tumour, the protective covering being torn off, and the appendicular contents allowed to escape. In the case already alluded to as occurring after coitus, the appendix half an inch from the end was perforated and adherent by the thinnest of membranes to the parietal peritoneum. This in all probability was partly torn across, and leaked during her last acute attack with the result that in a few hours she had a rigor, her pulse rose to 125, and her temperature to 103, and she suffered the most acute agony. I had everything in readiness for immediate operation, but was guided by a falling pulse and temperature to stay my hand, for the time being. The appendix was subsequently removed by an "interval" operation and the patient is now quite well. Those cases in which gut and omentum have come to the rescue of an appendix before perforation usually speedily resolve and generally give no trouble, but the writer believes that spilling of the contents of an inflamed appendix amongst the surrounding structures generally leads to an actual abscess. Such abscesses need not be large and may be undiscoverable by the ordinary means of diagnosis. In one case a lady presented symptoms of subacute appendicitis, a little low fever, slight tenderness over the appendicular

region, a little tension of the muscles over it, but no decided tumour, and only slight tenderness by rectal examination. Although she was quite spare, no thickened appendix could be felt. I gave the necessary warning to her to remain in bed at entire rest, and so slight were her symptoms, which, when I saw her, she had already had for ten days, that I did not see her again for a few days. She then told me that she was much better but had had an attack of dysentery. On asking her symptoms she said that at first she had passed mucus and then mucus and blood and subsequently about a tablespoonful of pus, which she recognised as she had been a hospital nurse. Now these are the ordinary symptoms when an abscess is about to burst into the large bowel, and I think that if the pus had been located in the appendix, I would have been able to feel it. There were no more bowel troubles. Abscesses following appendicitis may be looked for over a very large area, in the writer's own experience, they have occurred in the right hypochondriac region, right lumbar region, right hypogastric region, left hypogastric region. One was found nearly filling the pelvis and compressing the rectum. In another strange case the pus made its way down the spermatic cord. The case at first was taken by me to be that of a suppurating cord, until further examination showed that I was really dealing with a pericæcal abscess. Besides the abscess formation, cellulitis especially tracking up by the side of the colon, is not uncommon. In this connection, I may confess to have been much puzzled in several cases which came under my hands. In these cases masses of stony hardness were found just beneath the costal border on the right side, or lower down close to the iliac crest, or between these two regions. They were so hard and definite that by some they were diagnosed as sarcomata. On opening them, except quite superficially, all muscular structure of the abdominal wall seemed to the naked eye to have disappeared, and in place of it was dense inflammatory fibrous tissue of the hardest type. Amongst the deeper layers was usually a little pus, or granulation tissue. I now believe these cases to be appendicular in origin, as since then I have seen the more chronic of appendicular abscesses, gradually invading the abdominal wall as described. In these cases there has probably been a cellulitis, accompanying an appendicular abscess, which has burst into the gut in the more usual way, whilst a portion of the septic contents has become shut off and produced the chronic abscess above described. There are not in the writer's experience easy cases to treat. The damaged, fibrosed abdominal walls may take a very long time to soften, so that healing is extremely slow. I have not met these curious abscesses elsewhere. I hope at some future time to produce more definite proofs of their appendicular origin. It must be remembered that an appendicitis may cause serious symptoms by the adhesions which have been left behind, though, as a rule, it is marvellous how abdominal adhesions

clear up after the lapse of time. In one case, in which the writer saw in consultation with Dr. McCombie, and Colonel G. F. Harris, I.M.S., the patient found that gas collected in his caecal region producing a localised distention of the size of a small hand. He feared that he had a new growth, blocking his bowel. However, as he had previously had attacks of acute colic pain which might well have been due to appendicitis, we agreed upon an exploration of the appendix. This was found twisted and contorted, and bound down by adhesions, whilst two separate bands ran across the caecum and divided it into two chambers, in which no doubt the gas used to collect. I removed the bands and the appendix, and the patient made an excellent recovery. No growth was found.

Treatment—My former teacher, Mr. C. B. Lockwood in his most valuable work on appendicitis, which should be in the hands of all who are likely to meet with these cases, lays stress on the individual nature of each instance of the disease. There was never a truer observation. Every case differs and each must be considered and treated on its merits. There are no golden rules by which the treatment may be simplified. It is, I believe, agreed now that if all cases are left to medical treatment 80 per cent. may be expected to recover from that attack, whilst it is also probably truly claimed, that with very early operation the percentage of successes may be extended to nearly cent per cent. This is competing in theory. If we could live in an appendicular utopia in which patients at the earliest sign of appendicitis came smilingly to the right surgeons, who stood ever ready to remove the peccant appendage, all would, no doubt, be well. Unfortunately we have to deal with facts. The man in the street may be pardoned for hoping sometimes that his case is to be one of the 80 recoveries, and for desiring to postpone his operation for a few days in order that his surgeon may be absolutely sure, with the aid of consultants perhaps, that he really has appendicitis and not any cholecystitis, or in the slightest cases, a mere indigestion. However much the surgeon may desire to meet with his patient's appendix in as good a condition as possible, it is certain that in practice he will have very few opportunities of removing it in the first few hours of an acute attack. This is particularly true of our Indian patients at present. He must then content himself with watching the case until he sees the course which the disease is likely to take. On the one hand, he may have to deal with a fellow creature snatched from apparent good health and sent to the brink of eternity in a few hours, or he may have to deal with a little colic, and a little tenderness which passes away in a few days. In the former case his greatest vigilance is demanded from hour to hour, sometimes almost from minute to minute. The onset has been very rapid. An acute pain perhaps situated over the umbilicus, and not necessarily over the appendix, has started the

patient, a rigour follows with rising temperature, a soft pulse rapidly increasing in frequency, and soon vomiting. Then he will be wearing that anxious indescribable look which tells the surgeon plainly of some abdominal disaster. In such a case it is of the gravest importance that the decision as to operation should be left in the hands of the person who is to operate and who should see the patient's symptoms for himself at short intervals. A single consultation may just happen to catch the patient in a quiet period, the lull, for example, which follows sometimes the gangrene and perforation of the organ. Some little circumstance may point the way for action or give the signal for delay, which may be lost to notice if the watch is not very thorough. The occurrence of an initial rigour is very important and in the face of a general crescendo of symptoms, the call for operation must not be delayed. If after a few hours the pulse rate falls and the temperature is less, and the pain diminished without the use of morphia, then in spite of the initial severity of the attack the surgeon may still wait a little, until further symptoms arise, but unless all symptoms abate in doubtful cases of this severity, he will do well to operate. The use of morphia in these early stages is a crime. The masking of symptoms until surgical aid is useless, is the price paid for a few hours' comparative ease. In a less severe attack absolute rest is imperative. The wisdom of purgation is challenged. Personally, I prefer to keep the milder cases under small doses of laxative salts to ensure the moving on of the intestinal contents. A small enema too may be carefully given at intervals. For the pain and colic hot fomentations of light material are very useful and comforting, but heavy hot water bottles should not be used if the case has not demanded operation in the first few hours, it may still come to it in the event of some manifest surgical disaster at a later stage, when the chances of success are decidedly less favourable. In the less severe type, the rigidity of the abdominal muscles gradually wears off after a few days, and if there has been marked local reaction the tumour consisting probably of agglutinated intestine and omentum will be felt. It now remains for the surgeon to endeavour to discover whether an abscess is present or not. If fluctuation can be clearly felt, there is no need of further discussion. In other cases, where only the tumour is present, reference must be made to the pulse and temperature as compared with previous days. The rectal examination which is indispensable in all examinations, of a suspected appendicitis, may give some information. So too, a blood count, especially a differential count, may give a clue. Muscular rigidity in itself is no proof of the presence of pus. I recollect a case in which I was tempted by a "phantom tumour," i.e., locally rigid muscles, and a high blood count of 18,000, to open the abdomen of a patient, who was suffering from fever and a tenderness over the appendicular region. I must say that I

expected to find pus, but found only an appendix, slightly thickened perhaps, but looking to the naked eye horribly normal. Microscopic section showed ulceration of the mucosa. His pain and fever immediately left him and he was troubled no more by it. The high blood count was subsequently found to be due to a miscululation by my informant, and there was a more moderate count next day. Parenthetically, it may be remarked that "phantom tumours" of muscle almost always indicate a deep seated trouble below. When the surgeon has settled to his own satisfaction that pus is present, it is safest to evacuate it. The more general course for an unopened appendicular abscess to pursue, is to open into the bowel, which I regard as one of the most favourable methods of termination. For reasons which I cannot explain, there seems to be no tendency for a reflux of bowel contents into the abscess sac. The abscess seems ordinarily to close up in a very short time considering the size to which an appendicular abscess may grow. However, one cannot be certain of this favourable termination. In a few cases, the abscess may burst into the general cavity of the abdomen, with disastrous results. On the other hand, an abscess left unopened too long may result in portal pyæmia and liver abscess. The pulse and temperature, blood count and the amount of local reaction will give a fair guide as to what delay, if any, is permissible in seeking for the presence of pus. The tumour should be very carefully and gently palpated day by day, and its increase or diminution will help to guide the surgeon. I believe that a certain number of appendicular tumours which appear to have resolved, have really discharged the contents of an abscess into the bowel. A boy was brought to me from a place several hundred miles away, with the statement that a distinguished surgeon had stated that he should be operated on at once. This may have been the case when he was seen there, but when he arrived under my care, a falling pulse and temperature led me to stay my hand. As the rigidity of his muscles passed away, a mass was felt on the right below the costal arch, whilst his appendicular region was also tender. He did well for a day or two, but his temperature remained at about 101 or 102. I concluded that he had an abscess, and gave orders for his operation. In the night, however, his temperature fell suddenly to normal, and the mass was much diminished in size. The stool which he passed that night was unfortunately thrown away. He had no further bad symptom, and I expect to remove his appendix by an interval operation, at a more favourable season. On the other hand, shortly before I had seen a large mass in a similar situation, in the case of an elderly Bengali lady, which disappeared quietly by resolution.

CHRONIC ABSCESSES

The surgical treatment of these chronic appendicular abscesses requires great care. In my

own mind, I divide them into three classes, viz — (1) those in which the abscess mass is adherent to the anterior abdominal wall, (2) those in which there is free peritoneum intervening between the abscess mass and the abdominal wall, (3) those which bulge into the pelvis, and press on the pelvic contents.

These varieties all require different treatment.

OPERATION FOR REMOVAL FROM ABSCESS WALL

The first is the most common here. I use a small incision usually over the most prominent part of the tumour, separating the muscular fibres, except when they have been taken up by the inflammatory invasion, in the deeper layers. If more room is needed, I follow Mr A. A. Bowlby's plan of turning the rectus partly out of its sheath and incising its posterior layer. The deeper layers are carefully separated and when the presence of pus is proved with a blunt director, I enlarge and examine the wound with one finger. Caution should be used in breaking down trabeculae crossing the abscess cavity as these probably contain vessels which may be troublesome. Now the question of removal of the appendix is before us. Again, following Mr Lockwood, I cannot conceive why any diseased appendix should be wilfully left in a body when it can be generally found and removed with perfect safety from this type of abscess cavity. The operations should, however, only be attempted by those with experience in abdominal work. Statistics vary as to the percentage of recurrences in those cases, in which recurrent appendicitis occurs after abscess. It is probably 15 per cent. In the great majority of these 15 per cent the appendix may be removed, if care be taken. It is true that when the examining finger arrives inside the cavity, all may seem at first a blank, but a careful and very gentle exploration of every part of the cavity should be made. In only a very small proportion of the cases will the whole appendix be felt. Often only a very small portion of the organ is in actual relation with the abscess cavity. The most comforting thing is to come across the tip of the appendix which feels like the pulp of the tip of a soft little finger, a peculiar feeling not easily obtained from pieces of hardened omentum, which most often simulate the appendix.

If the tip cannot be felt, it is well to remember the variations in thickness which the appendix may present. Working in the abscess cavity with the right or left forefinger, whichever is the more convenient, the object suspected to be the appendix is gently separated. I depend entirely at this stage on the sense of touch. If omentum is attacked by mistake, very soon the want of regularity and the absence of the cord-like feeling of the thickened sub-mucous and mucous coats will show the error. The omental tag must be dropped and a fresh careful search made. In a very few cases only the walls are so dense and smooth that there is absolutely no indication

as to the position of the appendix after very careful search. In such cases only do I leave the appendix. To continue with the steps for removal from a walled-in abscess cavity, I discard retractors for they hurt the finger, which is at work inside, and while separating the appendix from its bed of lymph, I make no attempt to take up its vessels, unless a mesentery is clearly seen which is rare. Nothing is more dangerous than to push pressure forceps at random in the hope of checking bleeding in a cavity. The ends of the forceps are sure to nip something undesirable. Fortunately although the hæmorrhage during separation may be a little free, it need cause no alarm. It soon stops with the pressure of a damp plug of gauze. Next, as forceps in a small wound take up valuable space, I pass a silk thread round what I take to be the appendix, and pull it up as far as possible to the surface for identification. If all is right, this thread serves to tighten the appendix whilst further separation is effected, and this is continued until the operator has made up his mind that there is no more left, or that he can go no further, preferably the former. In some cases the muscular layer is too soft to be dissected out entire, and the finger passes between it and the cord-like mucosa and swollen submucosa, which may often be traced much further than the muscular layer. When possible I apply a ligature to the base of the part separated and use that ligature as a tractor to enable me to make a still further separation. Sometimes the appendix tears through before a ligature is placed round it. This little accident has caused me no trouble. When I do eventually find the base and ligature it, I leave the ends long enough to hang out of the skin incision, as I have no desire to leave a sinus which will not heal. The hæmorrhage if at all free ceases very soon, especially if a little gauze is pushed into the wound. To complete the operation, I put a rubber drainage tube and tuck in a little gauze round it, and sew up most of the skin wound. Deep muscular stitches are not used as these would leave sinuses. The deep incision is quite small, only large enough to allow the finger easy access, and there is very little chance of hernia, if the abscess has not invaded the abdominal wall too deeply. In subsequent dressings the gauze is withdrawn on the second day and the tube quickly shortened. The cavity is never washed out under pressure, but if foul a little hydrogen dioxide solution is poured in and sucked dry with a glass syringe, a India-rubber tube after a short lapse of time, whilst the gauze inserted is soaked in the same solution. In some cases cellulitis spreads along to the lumbar region.

I try and avoid incisions here, if possible, as the connective tissue is so much opened up. Extensions of cellulitis in that direction often clear up after an abdominal incision. Still lumbar drainage may be necessary on occasions.

(2) SECOND FORM OF ABSCESS

In the second form of abscess, where free peritoneum exists between the skin incision and the abscess cavity, we are face to face with a much more serious state of affairs. The condition is sometimes found as a surprise, but may, more often, be suspected from the ease of movement of the abdominal wall over the mass and sometimes by the presence of resonant gut between the abdominal wall and the abscess. In these cases it is as well to note if there is any possibility of establishing retro-peritoneal drainage. As a rule there will be none, as these abscesses are attached as it were to the parietal wall of the body and are more usually found towards the middle line away from the anterior iliac spine. The situation is a dangerous one, and should be carefully dealt with. First of all gauze should be tucked all round the mass, each separate piece having its end hanging out of the abdominal incision. When a good layer of gauze is in position all round, the abscess cavity is carefully opened between two coils of intestine if recognizable, if not, the finger may be used to take the line of least resistance, and the abscess cavity is opened, the pus being mopped up as fast as possible by swabs of damp gauze. When the cavity is empty a rubber tube should be inserted, and if soiled, the pieces of gauze acting as a dam may be changed. These pieces surrounding the tube are changed after 24 hours, a process which unfortunately causes great pain. On cleansing the next strips need not be tucked in so deeply. In these cases, unless the appendix absolutely appeared in the abscess cavity, I would not try to remove it, as the less the disturbance of the parts, the better. In no case should the pus from such an abscess be released until all preparations have been made to sop it up, otherwise severe symptoms resulting from the absorption of the toxins by the peritoneum may very soon be expected. This class of abscess is naturally dangerous.

The precautions described above will also have to be taken when fouled peritoneum is found during emergency operations for removal of the gangrenous appendix or when acute abscesses are found.

(3) PELVIC ABSCESS

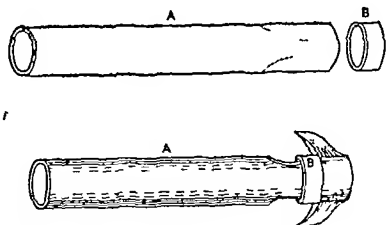
In the third class of abscesses I place those which are found in the pelvis pressing on the rectum, into which, if left to themselves they would probably burst. Given this condition, the most natural course seems to me to anticipate nature, and open them carefully through the wall of the gut. In this way they seem to do very well. In one case a boy came to me after a fortnight's fever. His appendicitis first of all had showed itself in the usual place. On the formation of an abscess, it had tracked over to the left side, and was clearly felt, in the left hypogastric region. It had then invaded the pelvis. In the right hypogastric region it was obviously deep seated. In the left hypogastric region there was plainly

free peritoneum and the large bowel between me and the abscess. So declining an invitation to open the abdomen for safety's sake, I opened the abscess through the anterior wall of the rectum and drained it with a rubber tube. All went well and a large abscess was cured in a few days.

There is no necessity to make a second abdominal incision as drainage takes place very well without it. The appendix can afterwards be removed by an interval operation.

SELF-RETAINING DRAINAGE TUBE

I have for the last 12 years used a little device of my own for securing the retention of a drainage tube in this and similar situations. A suture through the intestine is thus rendered



THE WRITER'S METHOD OF MAKING A SELF-RETAINING DRAINAGE TUBE

unnecessary. A ring is cut off the end of the drainage tube. Two wings are cut in the same end of the drainage tube, and the ring is passed over them and then under the free end, to make them stand out like flukes of an anchor. So prepared, a drainage tube never comes out unless drawn out, nor is the ring ever left in. The diagram appended will, I think, explain itself.

"THE INTERVAL OPERATION"

The so-called interval operation may naturally vary much in its difficulty. Sometimes there will be none. But in these cases and in all others there must be no stump. Incomplete operations like other sins are sure to be found out. I have recently had in my charge a man suffering for the third time from appendicular abscess. He had two scars on his abdomen. One, he said, represented the opening of an abscess, but through the other his appendix had already been removed elsewhere.

On opening his abdomen for the third time I found a large abscess and was able to remove 2½ inches of a greatly diseased appendix, much to the man's surprise when he heard of it. Believing that in the cuff operation, there is rather a tendency to leave a stump, I prefer to crush with forceps and ligate, and then to sew the peritoneum, covering the cæcum over the ligature with a few stitches. Of course, care must be taken with the vessels in removing the free appendix, for here the conditions are widely different from those in which the appendix is grubbed out from the abscess wall. One little vessel at the base of the appendix needs especial attention. Interlocking ligatures will probably afford the best protection against hæmorrhage. Care too must be taken to change instru-

ments which have been used for the transverse division of the appendix, and if pure carbolic acid is used for the 'stump,' it must naturally be used neatly and not allowed to trespass.

More than one consideration guides the regulation of the length of the interval before operation. In the first place, if the initial attack has been severe, and there have been definite signs of peritonitis, it will be better to wait for some considerable period, unless there are contraindications. I operated on such a case three weeks after the attack, sooner than I wished, but under unavoidable circumstances. There was the greatest difficulty in recognizing the parts, as all the coils of gut, large and small, were covered with a thick veil of inflammatory exudation. I finally found the appendix hanging over the brim of the pelvis and my sorrow at having to operate under these conditions was considerably lessened, when I found that only the thinnest of membranes protected the patient from another possibly fatal attack. Had I been able to wait three months, there might have been very few adhesions. This case, however, brings me to the second consideration. No one is safe, if after an attack the tenderness persists, or the temperature remains above normal, or if the tongue, which is an excellent index of appendicular health, refuses to become clean. At such times, it will be probably better to hasten the operation and put a stop to a state of things dangerous to the patient and wronging to the surgeon. Another point which strikes me is, that if an abscess has discharged itself through the bowel, this fact must be taken into consideration, as if the appendectomy is undertaken too early, there must be a certain risk of producing a focal fistula. In my experience an interval of a few weeks has been sufficient. The point of discharge into the gut need not be near the appendix itself. It is of course a troublesome and dangerous complication to come across an unsuspected or half-healed abscess in the course of an "interval" operation.

TRANSPORT OF THE PATIENT

The question of transporting cases of appendicitis is sure to arise in this country. Here again every case must be judged on its merits. In the early stages, all movements and consequently all travelling must be dangerous. If there is a local reaction, and arrangements can be made for comfort, it is possible that patients may be moved later on. Cases of this description have reached me in perfect safety, though without my previous knowledge, from places as far distant from Calcutta as Waltham and Benares, but there must be a certain amount of risk in moving such cases too.

I fear that there are numerous interesting points upon which I have not been able to write, but I hope that these remarks may be of some use to the junior members of our profession, to whom the care of these cases may fall.

SOME NOTES ON TUMOURS AND INTESTINAL OBSTRUCTIONS

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When asked to write a paper one is face to face with the problem of what to write about. It is very well if one can produce a series of cases which are either rare or show the results of a new method of treatment, but when one is not in that lucky position the case books are studied with more or less disappointing results. The search may, however, produce an odd case here or there which to the writer seems to possess some unusual feature, but may not to others of greater experience, yet it is difficult to be sure on the latter point, and this must be my excuse for the collection of odds and ends which follows.

The following cases of tumours are out of the common —

1 *Fibrochondrolipoma* — K, Hindu male, æt 45, was admitted with a large oval tumour of the left thigh, extending from the popliteal space to within 3" of the groin, it had been in existence for two years and had been incised 15 days before admission leaving an ulcer. At operation it was found that the sartorius and hamstring muscles were spread over the tumour which shelled out fairly easily. On section there was an area of breaking down fat beneath the ulcer, the main mass of the tumour was fibrolipomatous, but there was also a large fibrocartilaginous area about the size of a dry coconut, in which myxomatous degeneration had occurred in a piece about the size of a hazelnut. The tumour weighed five pounds. Intermuscular lipomata are rare, and I have been unable to find any reference to their combination with cartilage. Unfortunately there is no definite note as to the tumour being attached to the periosteum, but believe it was not. If it had been the tumour might have been classed as a periosteal lipoma. These tumours are, however, usually congenital and nearly always contain tracts of striated muscle fibres.

2 *Cystic Adenoma of the Liver* — Hindu female, æt 50. Gave an indefinite history that two years previously a tumour was noticed over the right lower ribs, external to the nipple line which had gradually increased until the last month when the increase had been rapid. There was a tumour about the size of half a small green coconut over the right lower ribs, the skin was closely adherent and fluctuating areas could be detected. The tumour could be lifted up from below, here it extended to within an inch of the umbilicus but was fixed above. An oval incision was made above and one cyst opened which contained greenish black thick fluid. The upper portion of the cyst was removed, the cavity extended well down into the flank and also directly backwards. There were many small cysts filled with white gelatinous material, the majority of the cysts

and the contents were removed, the condition of the patient did not permit of total removal. During the operation the abdomen was opened on the inner side. The cyst moved very freely with respiration. The cavity left was plugged and contracted considerably, but the patient left the hospital after two months with a cavity formed by the portion of the cyst wall left behind.

A PUZZLE IN DIAGNOSIS

The following case is a puzzle in diagnosis —

A Hindu male, æt 30, was admitted with a history that a year previously he had noticed a small centrally placed tumour in the lower abdomen which had gradually increased. He had lost a little weight since its appearance. There was a tumour about the size of an eight months' pregnancy only more globular, very slightly movable and hard. No renal or other symptoms. Median coeliotomy, the peritoneum was slightly adherent, on breaking these adhesions down there was very troublesome hæmorrhage from the cyst wall. Aspirated and clear yellow fluid drawn off, the cyst wall was then incised, it was 3" thick, white, firm and fibrous. It was sutured to the abdominal wall and a drainage tube introduced. As it was obviously impossible to remove the tumour, and considering the hæmorrhage the separation of only a few adhesions had caused the hand was not introduced to determine the attachments of the growth. The fluid when mixed with blood clotted into yellow clots, its sp. gr. was 1030 and highly albuminous. Some breaking down whitish material was scraped from the cyst wall which was neither like hydatid membrane or ordinary sarcomatous growth. No scolices were found in the fluid and the scrapings showed nothing distinctive under the microscope. The patient had practically no shock and was doing well when I left headquarters some few days later, on my return was informed that he had suddenly taken a turn for the worst and had died in a few hours, unfortunately no attempt had been made to obtain a *post-mortem*.

The diagnosis is very doubtful. The cyst wall did not give one the impression of being sarcomatous, and to have one large central cyst is, I fancy, uncommon, moreover the interior of the cyst wall was smooth and did not present any irregular projections which are usually associated with a sarcoma undergoing cystic degeneration. The large size of the growth with a year's history does not give much help for the tumour was probably in existence some time before it attracted the patient's attention, his condition too was not suggestive of his being the subject of malignant disease. The clotting of the fluid withdrawn was remarkable, as far as I know the fluid from cystic sarcoma does not clot, and considering that it is derived from hæmorrhages into the substance of the growth one would expect it not to.

One at the time naturally thought of hydatids, but although the fluid of a dying cyst contain albumin, yet the fact that the tumour had steadily increased in size puts that diagnosis out of count, and even if a sterile cyst the scrapings of the wall would probably have shown characteristic elements

TUMOURS IN INDIA

It is of some interest to consider the relation between the class of cases one sees in India and in England, it is, of course, well known that cases of tumours, etc., are generally allowed to grow to a much larger size in India before surgical aid is invoked, but there are distinct differences between the frequencies with which various kinds of tumours are met with

Niblock,² Sutherland,³ and Megaw,⁴ have all worked out the incidence of malignant disease in Madras, the Punjab and Bengal respectively, what however strikes one clinically is the rarity of rodent ulcer and carcinoma of the rectum in Bengal, only two cases of the former and one of the latter have come under my observation during seven years' service in the province, this agrees with Megaw's conclusions drawn from the figures of the Medical College Hospital Sutherland² however gives higher figures for rodent ulcer in the Punjab, *i.e.*, 36 cases in 12 years as against six cases in nine years in Calcutta, and puts forward as a probable cause (including skin epitheliomata) that they are set up by the skin irritation caused by cuts with a blunt razor in shaving the head, this practice is, however, fairly common in Bengal, so that there is likely to be another factor at work. As regards simple tumours and cysts Neve⁵ has given figures for Kashmir, I believe the incidence has not been worked out with a large series of cases in Bengal, but think this would be of some interest. The following observations are based on figures from my own operation books, and comparing them with those from St Thomas's Hospital Reports, of course, they lay no claim to anything like scientific accuracy firstly, because my figures are not sufficiently large and only include cases personally operated upon, moreover, a certain number of removal of small tumours have been omitted for not being of any particular interest, while the St Thomas's figures are complete and are the work of several surgeons. It may, however, be conceded that if the Indian figures show an excess over the London ones under the above conditions, then that particular class of tumour is commoner in Bengal and *vice versa* though to a less extent. These results are shown in tabular form in the next column

Analysing the percentage tables showing the relations of the number of any particular kind of tumour to the total operated upon, the following conclusion may be drawn—

Lipomata, enchondromata and granulomata are about equally common in the two countries. Fibromata and papillomata show an excess as

compared with the English figures. I, however, believe that this is more apparent than not as several of these in my series were of a trivial nature and could easily have been done in an Out-patient Department, in which case they would not be shown in the St Thomas's Hospital Reports, which deal with in-patients only. As regards papillomata, out of the 28 English cases six were of the bladder and five of larynx, none of these varieties occurred in the Indian series

	Indian cases	St Thomas's Hospital	Percentage to No of cases, Indian	Percentage to No of cases, St Thomas's Hospital
Lipoma	22	66	26	23
Fibroma	18	21	21	9
Papilloma	15	28	18	11
Naevus	8	36	9	15
Enchondroma	4	10	4	4
Osteoma	0	29	0	12
Fibroadenoma of breast, hard	1	32	1	13
Fibroadenoma of breast, soft	2	0	2.5	0
Parietal tumour	8	2	9	1
Submaxillary tumour	1	0	1	0
Granuloma	5	15	6	6
	84	239		

Nevi are less in the Indian series. The most striking features are the large excess of osteomata and the small hard fibroadenoma of the breast in the English series, each being practically 12% to *nil*. On the other hand, tumours of the salivary glands are much more frequent in the Indian series. The submaxillary and one of the parotid tumours were of large size, weighing $2\frac{1}{2}$ and 5 lbs respectively

With cysts figures were analysed in the same way as tumours. The results were that in the Indian series dermoid and sebaceous cysts were in excess, but the fact that in-patients are only included in the English reports probably makes the incidence about equal. There was one interesting case in which there were two supraorbital dermoids on one side entirely separate. Denti-gerous cysts were also more frequent in the Indian series and some of them attained a large size. The greatest preponderance was, however, observed in syphatic cysts, using the term comprehensively, in the St Thomas's series three "serious cysts" of the neck were recorded, these were probably "hydroceles of the neck," against these the Indian list contains three cases of cystic hygroma of the neck and one of the axilla and five lymphatic cysts of the groin. These latter were all associated with slightly enlarged lymphatic glands, but the cyst formation was the salient feature. The glands themselves also showed cystic dilations in their substance. The main cyst or cysts communicated by several dilated lymphatics. They all increased in size in the erect posture after the fashions of a varicocele and in some cases gave rise to a good deal of discomfort if not actual pain. They could

be dissected out with fair ease, the only difficulty being in dealing with the lymphatics going into the abdomen, the best way of closing these being by under-running the oozing mouths with a suture. One case became infected slightly and the constitutional symptoms were out of all proportion to the seriousness of the infection, due to the rapid absorption from the open lymphatic channels. One case had symmetrical cysts. One case was seen a year after operation and the result was quite satisfactory.

The Indian series also contained four examples of implantation cysts against none in the English, and it is probable that others classified as sebaceous were also of this nature since some were found in very unusual positions, *e.g.*, the ankle for sebaceous cysts. This is what one would expect from the scantily attired Indian with his liability to thorn punctures, etc.

The English cases show a large excess in cysts of the breast and of the epididymis.

Enlargement of bursae, though not strictly speaking, cysts may be mentioned here, they are very much less frequent in India than in England, the same remark also applies to the common ganglion on the back of the hand.

I have also reason to believe that there is a considerable difference between the incidence of the varieties of intestinal obstruction met with in Bengal as compared with the figures accepted for England. The following list shows this; it will probably be contended that the figures are much too small to draw accurate conclusions from, yet the preponderance of volvulus is so large that the relation can hardly be accidental. I am indebted to Captain J. J. Urrin, M.S., for permission to publish the last ten cases which were operated upon by him.

No	Race and caste	Sex	Age	Variety of obstruction	Duration of symptoms	Result	REMARKS
1	Bengali, Hindu	Male	24	Volvulus of small intestine	8 days 3 do	Died	Twist from left to right history of chronic diarrhoea, slowly produced volvulus
2	Ditto ditto	Do	30	Ditto	8 hours	Do	Twist from right to left
3	Hindu, Bengali	Do	22	Tuberculous peritonitis Matting of gut	10 days' obstruction	Do	Multiple adhesions separated with relief of obstruction
4	Bengali, Hindu	Female	37	Obstruction by band	10 days 4 do	Recovered	Single band passing from border of small gut above to mesentery below, gut strangled beneath band
5	Behari, Hindu	Male	35	Volvulus of sigmoid	4 do	Died	Sigmoid gangrenous, peritonitis twist easily reduced, 4 turn from behind forwards Gut resected and artificial anus
6	Bengali, Hindu	Do	34	Multiple adhesions plus kink from Meckel's diverticulum	"	Do	Multiple adhesions 1" broad tying small gut to mesentery divided obstruction relieved Meckel attached to umbilicus causing kink, divided
7	Ditto, Mahomedan	Do	25	Multiple adhesions between small gut and mesentery plus kinking	3 days	Do	Two sets of adhesions divided
8	Ditto, ditto	Do	25	Volvulus of cecum	4 days' constipation 4 hours' sudden increase	Do	Cecum and colon lying transversely in upper abdomen, cecum almost in contact with spleen, complete mesentery to ascending colon Cecum gangrenous Paul's tube
9	Ditto, Hindu	Do	22	Volvulus of small intestine	2 days	Do	Volvulus of 3 ft of gut from left to right
10	Ditto, Mahomedan	Do	38	Multiple adhesions	10 do	Do	Many adhesions encircling gut in places in appendicular area
11	Ditto, Hindu	Do	45	Volvulus of small intestine	4 do	Recovery	Twist from left to right most of small gut eventuated
12	Ditto, ditto	Do	28	Ditto	8 do	Died	Gradual onset 2 ft twisted from right to left Death from bronchitis
13	Ditto, ditto	Female	42	Chronic Intussusception	15 do	Do	Ilio cecal intussusception gangrenous
14	Ditto, ditto	Male	23	Ditto	2 months	Do	Intussusception resected
15	Behari, ditto	Do	20	Volvulus of small intestine	2 days	Recovery	Volvulus reduced large meal before onset of symptoms
16	Ditto, ditto	Do	30	Ditto	7 do	Do	Volvulus reduced
17	Ditto, ditto	Do	25	Obstruction by band	2 do	Died	Band divided obstruction relieved Tubercular lungs
18	Ditto, Mahomedan	Do	55	Volvulus of sigmoid	3 do	Do.	Recurrent previous of recovery Neck of sigmoid meso colon very narrow Gut gangrenous Excision of sigmoid
19	Ditto, Hindu	Do	70	Volvulus of small intestine	8 do	Do	Volvulus reduced, peritonitis

No	Race and caste	Sex	Age	Variety of obstruction	Duration of symptoms	Result	REMARKS
20	Behari, Mahamadan	Male	80	Volvulus of sigmoid	2 days	Recovery	Reduction easy. Narrow neck of sigmoid mesocolon with old adhesions between gut.
21	Ditto, Hindu	Do	40	Carcinoma of Rectum	5 do.	Relieved	Great distension. Left inguinal colotomy with cocaine anaesthesia.
22	Native, Christian	Do	30	Strangulation by band	3 do	Recovery	Band in right iliac fossa from anterior abdominal wall to bump of pelvis. Small gut strangulated beneath.
23	Bengali, Hindu	Female	35	Multiple adhesions	2 do	Died	Several bands from mesentery to pelvis, 2 ft small gut strangulated by one of them.
24	Bengali	Male	35	Volvulus of small Intestine	15 hours	Do	10-12 ft of ileum twisted from left to right. Volvulus reduced.
25	Ditto	Do	20	Ditto	2 days	Recovery	Greater portion of small gut involved, twist right to left. Eventuation.
26	Ditto	Do	55	Volvulus of sigmoid	3 do	Death	Twist from above downwards. Volvulus reduced, sudden collapse after 18 hours.
27	Ditto	Do	32	Ditto	6 do	Recovery	Twist from below upwards. Volvulus reduced. Recurrence 12 months later.
28	Ditto	Do	48	Ditto	5 do	Died	Operation. Recovery. Volvulus reduced. Death on 6th day. Obstruction relieved, very feeble individual.
29	Ditto	Do	?	Volvulus of cecum	7 do	Do	Gut had given way at site of twist. Reduction.
30	Ditto	Female	35	Intussusception	3 do	Do	Intussusception of ileum into itself plus ileocolic intussusception. Ileocolic reduced. Small gut gangrenous 3 ft resected and anastomosis.
31	Ditto	Male	40	Obstruction by band	3 do	Do	Perforation in strangulated part. Band divided, suture of perforation to incision.

Out of these 31 cases there are —

Volvuli of small intestine	10
Do of sigmoid flexure	6
Do of cecum	2
Adhesions and bands	9
Intussusception	3
Carcinoma of rectum	1

Total 31

i.e., more than 50 % are volvuli of one description or another. Treves⁽⁶⁾ out of 1,000 fatal cases of intestinal obstruction gives the varieties roughly as Intussusception 350, Bands and through apertures 250, Stricture 150, Tumours and foreign bodies within the bowel 100, Fæcal accumulation 60, Volvulus 50, Tumours, etc., external to the bowel 40, and goes on to say that the above is misleading as only fatal cases are dealt with, in actual practice cases due to fæcal accumulation are more numerous than cases of stricture of the large intestine, intussusception and next bands.

Langdon⁽⁷⁾ analysing 1,000 operations for acute obstruction and gangrenous hernia found out of 646 cases of obstruction 121 of volvuli and remarks that the proportion seems too large, certainly for practice in New York city, but that the references to it in Russian and German literature are very frequent.

The question to be settled is what is the cause of this preponderance of volvulus? Kuttner⁽⁸⁾ has called attention to the fact that a "geographical

predisposition" exists. In Russia the length of the small intestine is greater than normal, owing probably to the coarse vegetable diet. König estimates the length of the German small intestine at from 17-19 feet and the Russian from 20-27 feet. I have been unable to find any record of measurements of the intestine in the inhabitants of Bengal, but think it extremely likely that it would be found that the length of their small intestines would be above the average owing to their being largely vegetarians. In a previous paper⁽⁹⁾ I put forward the view that the increased weight and bulk of the fæces might be a factor in the causation of frequency of cæcal hernia in Indians, the same factor would also tend to cause elongation of the mesentery. According to Monks,⁽¹⁰⁾ generally speaking the longer the intestine the longer the mesentery and *vice versa*. With a long mesentery the liability to volvulus is increased, and considering that the average stature of Bengali is below that of the European, then the root of the mesentery would probably be shorter and thus combined with a lengthy mesentery would still further increase the liability to the formation of a volvulus. In the absence of exact observations one is, of course, arguing in the dark, but measurements of cadavers in the condition they are usually brought for *post mortem* examination would be of practically no value; still there seems no reason why the Russian observations should not be applied.

In the above list of cases portions of small intestine varying from about 2 feet in length to almost the whole length of the small intestine were involved. There seems to be no regularity in the direction of the twist, *i.e.*, from one side or the other. Several cases gave a history of having indulged before the onset of symptoms in a hearty meal of the most indigestible materials, and this often appears to be the exciting cause. The two cases of volvuli of the cæcum are interesting on account of their rarity. Corner and Sargent⁽¹¹⁾ were only able to find 57 recorded cases of this condition.

The mortality is, of course, high but considering the average duration of symptoms before operations it is not to be wondered at, but varies little from other recorded cases.

Gibson⁽¹²⁾ gives the mortality for volvulus as follows —

		Per cent
Total	121 cases, died 66, mortality	54
Sigmoid	58 " " 27, "	46
Colon	15 " " 7, "	50
Small	36 " " 25, "	70

It will be seen that the mortality for the small intestine cases is less than Gibson gives.

In several cases of small gut volvuli a tight band formed by the edge of the involved mesentery was present and gave one rapid information of the variety of obstruction.

The usual practice was for the involved loop or loops of gut to be punctured with a scalpel and the intestinal contents evacuated, the opening being then closed with a double continuous silk suture and the twist reduced. In other varieties, too, when the distention was at all great, the intestinal contents were evacuated in a similar way. Since 1907 I have employed a hypodermic injection of 1-100 gr. of atropine sulphate about an hour before operation in all abdominal section cases and have found it most useful in diminishing shock.

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OPERATIONS FOR HERNIA

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If umbilical and ventral herniæ be excluded, operation for hernia in the Madras Presidency is practically synonymous with operation for inguinal hernia.

I have made careful enquiries and am unable to find any record of a case of femoral hernia

in a male ever having been seen in the Madras General Hospital, or in the Madras Presidency, until three weeks ago when a well-developed Hindu man, aged 28, was admitted to my ward suffering from femoral hernia on both sides, with marked impulse on coughing. In this case the hernia on the right side was the larger—about the size of a walnut—and was operated on a few days after his admission. A piece of omentum present in the sac was ligatured and excised. The sac was freed, ligatured, and after reduction, was fastened to the abdominal wall, by a transfixing suture above Poupart's ligament. Bassini's operation for radical cure was then performed.

A few cases of *strangulated* femoral hernia in females have been met with in the General Hospital, but not more than half a dozen.

The notes which follow are based on all the operations for inguinal hernia which have been performed by me in Madras, chiefly in the General Hospital.

The total number of operations performed amounts to 380. 297 of the patients were Hindus, 28 Mahomedans, 28 Eurasians and 27 Europeans. Under the heading "Hindus" it has been necessary to include "other castes," as in many cases accurate differentiation would be absolutely impossible. Of the 380 operations 285 were for hernia on the right, 94 on the left side, whilst one was for double hernia. In a considerable proportion (probably over 50 per cent) of the left sided cases a hernia had been present at one time or another on the right side also. It is to be regretted that a complete record of this particular case has not been kept. Both sides are never operated upon by me at one sitting.

The subjoined table shows the conditions met with —

Variety	Total cases	Hindus	Mohomedans	Eurasians	Europeans	Right side	Left side
Reducible	302	229	23	27	23	224	78
Irreducible	22	16	2	0	4	19	2
Obstructed	3	3	0	0	0	3	0
Strangulated	53	49	3	1	0	39	14
Totals	380	297	28	28	27	285 One double	94

All the cases were males with one exception—a Eurasian woman suffering from reducible inguinal hernia. The youngest patient was aged nine months, the oldest (according to his own account) 105 years, the average age being between 20 and 40 years. Twenty-three were congenital, and over 50 per cent were complete.

A—Reducible Inguinal Hernia

Operation for radical cure was performed in 302 cases. No set operation was carried out, but

the procedure usually adopted is to split the external oblique aponeurosis in the direction of its fibres. The sac is then identified, caught up in forceps, opened, and separated carefully from the cord, veins, etc., and at the same time cut across in stages. I find that it is much easier to separate the sac in this way than to do so without opening it, and that the damage to veins and other structures is reduced to a minimum. The proximal portion of the sac is now thoroughly freed as far as the inner surface of the internal abdominal ring, transfixed, ligatured, reduced into the abdomen and attached above and external to the internal abdominal ring by a ligature which is brought out through all the muscles of the abdominal wall and is tied immediately underneath the retracted skin. The distal portion of the sac is in most cases pushed down into the scrotum all bleeding having been very carefully stopped. It gives no further trouble.

If omentum be found inside the sac or in close proximity to the internal ring a portion of it is removed, as, in my opinion, it takes a prominent part in the production of hernia in this country, other conditions being favourable. The omentum before division should be tied with strong silk ligatures. In one of my cases hæmorrhage took place into the peritoneal cavity, in another into the space between the layers of the omentum. In both of these catgut had been used and had allowed a vein to slip.

The internal ring is now attended to. If it be small and the muscles strong it is generally not interfered with, more especially in cases where the omentum has been removed. In other cases it is closed by two or three sutures uniting the arciform fibres to Poupart's ligament, the sutures in some cases passing *under*, in others *over* the cord, according to which suits the particular case best. The external oblique aponeurosis is then sutured. In many cases overlapping of the various layers is carried out somewhat after the method recommended by Halsted. This is particularly useful in cases of large herniæ and gives an excellent result.

In infants the sac after being carefully freed is ligatured and returned to the abdomen. Unless the hernia be of large size, *e.g.*, as big as a cricket-ball, the sac is not fastened up to the abdominal wall nor is the internal ring sutured.

There is no necessity to use a drainage tube even in the largest hernia, provided bleeding has been carefully stopped and that firm bandaging be applied.

Result — All the cases were discharged apparently cured except one. This was a man, aged 50, suffering from diabetes, the condition not having been detected before operation owing to some mistake on the part of my assistant surgeon.

He developed diabetic coma with complete suppression of urine and died next day. No *post-mortem* examination was allowed, but the operation wound was opened up and found to be quite healthy. About two ounces of urine drawn off from the bladder was found to be loaded with sugar.

Suppuration occurred in a small percentage of cases chiefly amongst my earlier operations, and was, I believe, partly to be attributed to the deep sutures having been tied too tightly. No case of suppuration has occurred for many years amongst my cases, except in one where the operation area was prepared by the iodine method and superficial stitch suppuration occurred. Ordinarily the skin is prepared by washing with soap and water followed by turpentine and 1 in 500 biniodide of mercury in spirit.

After having tried many varieties of sutures I have come to the conclusion that freshly boiled silk is the most suitable for the deeper tissues, fishing gut being used for the skin.

With regard to *recurrence* I have seen some half dozen of my patients in whom recurrence has taken place, and these were almost all patients with flabby abdominal walls. I have not yet seen a recurrence in a well-developed patient. Sixteen of the operations were performed on cases of *recurrent* hernia in many of which the previous operation had been palpably faulty. Almost all of them gave a history of the recurrence having taken place within a few weeks after discharge from hospital.

Contents of sac — Omentum is very frequently present in the sac, small intestine ranking next. In two cases the tip of the vermiform appendix was adherent to the neck of the sac, and, in two other cases of inflamed hernia, an inflamed vermiform appendix was discovered in the sac (one being on the left side). Portion of the urinary bladder formed part of the contents in seven cases. In a few cases a bi-lobed and in one a tri-lobed sac were found.

Nine of the cases had been admitted to the hospital suffering from symptoms of strangulation which disappeared under treatment. One of these cases is worth quoting here. The patient was admitted for left strangulated inguinal hernia. During the preparation for operation the tumour and all the symptoms of strangulation disappeared without any local manipulation, and the patient recovered. Five days later I operated on him for radical cure and discovered that in addition to small intestine a part of the urinary bladder was present in the sac.

On questioning the ward-boy who had prepared him for operation on his admission, he said that whilst being prepared the patient passed a large quantity of urine and expressed himself as feeling much relieved. In this case it would appear that the trouble was due to the herniated portion of the bladder being over-full and causing pressure on the intestinal

loop sufficient to give rise to symptoms of strangulation, and that, as soon as the pressure was relieved, the symptoms disappeared. The patient was an ignorant cooly and could give no definite history regarding the strangulation.

In six cases *undescended testis* was found. The rule followed is to bring the testis into the scrotum where this can easily be done. In young persons if this is not feasible the testis is returned into the abdomen. In older persons, and in cases of strangulation, it is removed and the internal ring completely closed.

Two of the patients were "bleeders" who caused a large amount of anxiety both during and after operation.

Hydrocele was present in twenty-eight, *haematocoele* in one, and *chylocele* in two of the cases. If these be small they are operated on for radical cure at the same time as the hernia, if large, they are done usually about ten days or a fortnight after the hernia operation. *Elephantiasis of the scrotum* was present in eleven of the cases, in these the elephantiasis was removed after the hernia wound had healed. These figures do not include a large number of cases in which the radical cure of the hernia formed part of the operation for the cure of large elephantiasis scroti. *Varicocele* was present in many cases and when large was removed. *Lymphangiectasis* (filarial) was present in six and was excised.

In nine cases a peculiar *lipomatous* condition of the cord was present. In all of these the fat was removed without apparently damaging the cord.

One of the patients had, in addition to his hernia, elephantiasis scroti, hydrocele, epithelioma penis, and granuloma of the pudendum. All of these were removed at one operation. He made a good recovery.

B—Irreducible Inguinal Hernia

Twenty-one operations were performed for radical cure or to enable the patient to wear a truss. Most of these herniae were of very large size and in elderly men. With two exceptions all were on the right side and contained usually large and small intestine. The irreducibility was generally due to adhesion of large bowel and omentum to the sac-wall—in many cases the result of inflammation. In fact, many of the patients came to hospital on account of the inflammation.

Two were admitted with symptoms of obstruction (one of these had a hydrocele containing over 120 ounces of fluid). Five had elephantiasis scroti.

In the majority of the cases the operation was of the "overlapping" type.

Whilst on leave in 1907 I saw Mr. McGavin perform his flaggee operation in the Seamen's Hospital, Greenwich, on many large herniae, with brilliant results. The operation is one which would have been eminently suitable for

some of the above cases of irreducible hernia. Since my return from leave, however, I have not had a case in which the flaggee treatment was required, so that I cannot claim to have any personal experience of the treatment. I am of opinion that it should only be used in cases where no other treatment offers prospects of success, as the buying of a large flaggee in an ignorant cooly or cooly (who form the bulk of the cases where such treatment would be indicated) is a procedure which may conceivably be followed by serious results.

Several of the patients (probably more than half) required to use a truss afterwards.

I have never done resection of gut in any of these cases. The operation, however, would appear to be quite justifiable in a young man with a large irreducible hernia, for all the contents of which there would not be sufficient space in the abdominal cavity. I had arranged to do an extensive resection of gut in one such case, but the patient 'bolted' on the morning of the operation.

Gigantic irreducible hernia, usually accompanied by enormous hydroceles, are frequently seen in the General Hospital, in weak old men, where the only possible treatment is the wearing of a bag truss. In such cases the hernia not infrequently extends to below the level of the knees and appears to have absorbed practically all the movable contents of the abdomen.

There was one death. The patient was over 50, with double irreducible hernia. In this case the operation was intended as a preliminary to an operation for removal of a large elephantiasis scroti. On both sides the hernia proved to be much larger, and with more adhesions than I had anticipated, and the utmost difficulty was experienced in their reduction. The major portion of his intestines, large and small, appeared to be in the sacs, and large pieces of the latter had to be reduced along with the gut. The patient never rallied from the shock of the operation and died a few hours afterwards.

This was my first case of operation for irreducible hernia, and I have had a wholesome respect for these cases ever since.

C—Obstructed Inguinal Hernia

Three cases, all on the right side. In all the hernia was enormous and had been irreducible for many years. In all three there was a history of several days' complete obstruction and distinct evidence of auto-intoxication. In two of the cases complete reduction was effected, but in the third—which had burrowed interstitially, so as to fill the right iliac and right half of hypogastric region,—complete reduction was impossible.

One patient died from cerebral embolism. The others recovered, both of whom were impressed with the necessity of wearing a truss ever afterwards.

D—*Strangulated Inguinal Hernia*

The total number of operations (not including taxis) performed for this condition was 53

The operation usually consisted of exposing and opening the sac, carefully washing it out with saline solution, dividing the constriction, reducing the bowel when considered safe, and performing the operation for radical cure when feasible. In doubtful cases the suspicious loop is reduced but kept near the wound and occasionally surrounded with gauze which is removed next day. In cases of undoubted gangrene a wide resection is the method of choice. In all cases any omentum present the sac is excised.

There were eleven deaths, i.e., a mortality of 20.7 per cent. In nine of the fatal cases there was a distinct history of over three days' strangulation, in two the duration was seven and twelve hours respectively.

Of the cases that recovered 18 were of less than 24 hours' duration, 10 were one to two days and the remaining cases all over three days.

In five the duration of strangulation was not known.

In four of the fatal cases the gut was gangrenous, in two it was ruptured with intraperitoneal faecal extravasation. Extensive thrombosis of the mesenteric veins with incipient gangrene of several feet of small intestine was present in another case.

As a rule the constriction was at the internal ring. In one case strangulation had occurred through a hole in the peritoneum above the neck of the sac.

I have seen four cases in which volvulus of the small intestine was the cause of the obstruction—one in the operation theatre and three in the *post mortem* room, in the latter three reduction by taxis had been carried out—a most dangerous, if not unjustifiable proceeding in this country where it is impossible to form any opinion as to the maltreatment to which the unfortunate patient has probably been subjected before he is taken to hospital.

The following cases are worthy of more than a casual notice—

(a) A man, aged 45 years, was admitted late one evening with a history of strangulation of a right inguinal hernia of 12 hours' duration. Seen by me two hours later when he was in a state of severe shock, with stercoraceous vomiting, rigidity and retraction of abdominal muscles. A soft flaccid tumour was present in the right inguinal region, dull on percussion and irreducible. Rupture, the result of forcible taxis outside hospital, was diagnosed.

An incision was made over the tumour which, when exposed, looked like bladder. No gut or omentum was present in the inguinal canal, but when a finger was passed into the abdominal cavity, through the internal ring, it was found on withdrawal to be covered with foul-smelling

faecal matter. A median laparotomy was at once performed and the peritoneal cavity seen to be filled with fluid faeces. No rupture of intestine could be discovered, but there were distinct evidences of strangulation of omentum. As the patient was now almost moribund no prolonged search was made. The abdomen was cleaned out as much as possible, the wound closed, and the patient sent to bed where he died shortly afterwards.

Post-mortem examination revealed the fact that the inguinal tumour was a greatly hypertrophied diverticulum of the bladder which was congested and constricted towards its proximal end. The great omentum was dragged out, lengthened, and thickened along its right border, its lower part being congested, swollen, and separated from the healthy upper part by a distinct constriction. The hepatic flexure of the colon was congested and ruptured at the site of attachment of the great omentum which was torn away from the ruptured portion of the colon for about half an inch. The tear was evidently due to the dragging of the omentum on the colon at that spot.

(b) A man, aged 45 years. Seen by me shortly after admission to hospital. He had a swelling in the right half of the scrotum, the size of a small orange, which I took to be a suppurating hydrocele or hæmatocele. There was also slight fullness in the right inguinal canal which I believed was due to incomplete omental hernia. It was irreducible. Both swellings were dull on percussion and a faint impulse could be obtained in the scrotal swelling when the patient coughed. The patient stated that he had not at any time suffered from constipation or obstruction of the bowels. On the contrary, he gave a history of diarrhoea but could not give its duration. He had never suffered from vomiting. Between the time of admission and operation—about 40 hours—his temperature and pulse were normal, there was no peritonitis or shock, and no vomiting. He passed several motions in which nothing abnormal was noticed by the attendants. His general condition was, however, distinctly below par.

Operation—An incision was made into the right tunica vaginalis when an inflamed hydrocele was discovered. On running the finger upwards along the cord it came on a small hard mass. The scrotal incision was continued upwards to the external abdominal ring, and the mass found to be a concretion in the vermiform appendix about the size of a large pea, the tip of the appendix had sloughed and this material had partially escaped. The material had the appearance of being composed of minute pieces of charcoal with a faecal odour. No faeces were present, however. The inguinal canal was next opened up and then, in addition to the appendix, the remains of a loop of gangrenous small intestine were discovered in the canal. Apparently about two inches of intestine had sloughed

away. A new canal, which was continuous with the distal and proximal ends of the intestine, had been formed and was surrounded by a layer of dark-red pulaceous material, but no faecal matter. There was no suppuration or sign of infection by the bacillus coli to be discovered.

As his condition appeared to be fair, resection with end-to-end anastomosis of intestine was performed, the appendix was ligatured and excised, and the patient put back to bed apparently in very good condition. He, however, shortly afterwards became restless and died six hours after operation. No *post-mortem* examination was allowed.

(c) A syce, aged about 35, was admitted with a history of having been kicked by a horse, a few hours previously, on left hypochondriac region of the abdomen, where a contusion could be seen. He was put to bed and ice applied. Next morning I saw him for the first time. He then appeared to be suffering from acute general peritonitis with slight distension of the abdomen. No loss of liver dullness.

Examination of the right inguinal canal revealed the presence of a strangulated inguinal hernia. He was at once prepared for operation, herniotomy performed, and about eight inches of strangulated small intestine reduced. A finger passed up through the internal ring was withdrawn covered with a yellowish material of the consistence of pea-soup. Rupture of the small intestine was diagnosed, the abdomen opened in the middle line above the umbilicus, and a rupture the size of the thumb-nail discovered in the small intestine at a spot corresponding with the site of the kick. This had been partly shut off by omental adhesions but not sufficiently so to prevent general infection of the peritoneal cavity, more than ten ounces of sero-purulent fluid being present in Douglas's pouch alone.

The rupture was closed by sutures, the abdominal cavity flushed out, and a tube placed in Douglas's pouch and brought out through a hole above the pubes. About 36 hours later severe stercoraceous vomiting set in and ended in death.

(d) A Mahomedan fakier who stated that his age was 105 years, and he looked it, came in with a right strangulated hernia which was operated on by me. Two weeks later whilst being carried downstairs on a stretcher a hernia on the left side became strangulated. I operated on him a few hours afterwards and reduced a knuckle of small intestine acutely strangulated. In spite of his age, of the fact that he was a confirmed opium eater, that he tore off his dressings several times and insisted on running about the wards and verandahs, both wounds healed by first intention and he made a good recovery.

SEPTIC PHLEBITIS OF THE SPERMATIC CORD

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THIS is a rare condition, cases of which have been observed, from time to time in Calcutta. So far as is known, it has not been described in India. Although a somewhat similar condition has been noted in Europe (funiculitis, Castellani). It is apparently purely streptococcal in origin, but the path of local infection has not yet been traced. In most cases there is no history of an external wound either scrotal or remote. Most of the patients have had no previous hydrocele. In one case it was bilateral. It attacks Europeans, Eurasians and Indians.

It is distinguished by its sudden invasion, the rapid development of septicæmia, and its fatal termination if not promptly and effectively treated.

Looking back the writer recalls a few cases, other than those now recorded, in which the full gravity of the condition was not appreciated by others, so that effective treatment was not adopted and fatal results occurred. The main points of the history are usually the same, the patients may or may not have been debilitated by previous ill-health from malaria, dysentery. Most of them previous to the attack were in their usual health. The attack begins with malaise, a rigor, with high temperature and sudden severe pain in one testicle and its cord. The testicle swells due to the development of an acute hydrocele, the tissues of the scrotum becoming cedematous, tender and the skin reddened, the colour fading away over the skin of the groin. The cord after the first and second day becomes swollen, hard, and tender, the swelling starting at the testicle and rapidly extending up the groin till its outlines are lost by the curve of the iliac region. The patient lies on his back with the thigh of the affected side flexed, abducted and everted. He suffers from nausea vomiting aggravated by movement. The temperature was high and with furred tongue, rapid compressible pulse. An icteric tinge commences to develop about the fourth day. If not treated properly, the case may terminate with all the signs of acute septicæmia on the eighth day. There may or may not be constipation. The vomiting is never fecal. The urine is scanty, high coloured albuminous and may be suppressed towards a fatal termination.

The differential diagnosis is important, as it may be confounded with strangulated hernia, acute filarial lymphangioectasis of the cord and possibly as far as the rigidity of the right iliac region is concerned with acute appendicitis. But the method of onset, the progressive development of the swelling from below upwards as the infiltration and the cord extends, the absence of symptoms and signs of intestinal obstruction,—no

previous hernial history all help to clear the case up. The mass of the cord from the testis to the brim of the pelvis is often of the thickness of the base of thumb of a muscular man. It is exquisitely tender. It does not feel like omentum, as its surface is smooth, the contour of the vas and pampiniform plexus being quite lost. There is no impulse on coughing. It is dull on percussion. In fatal cases the skin over the scrotum has not been found crepitant and sloughing as in neglected cases of strangulated hernia.

The treatment to be of use must be prompt and at first sight diastic. Under an anæsthetic the scrotum on the affected side is laid open by an incision extending from the lowest point of the swelling right up into the groin in following the curve of Poupart's ligament, but above it so as to imitate the incision for the iliac artery. The testicle is exposed, the swollen tissues of the scrotum streaming with yellowish serum. The thickened cord is isolated, the muscles of the inguinal canal being cleanly incised in order to expose the cord right up to the brim of the pelvis.

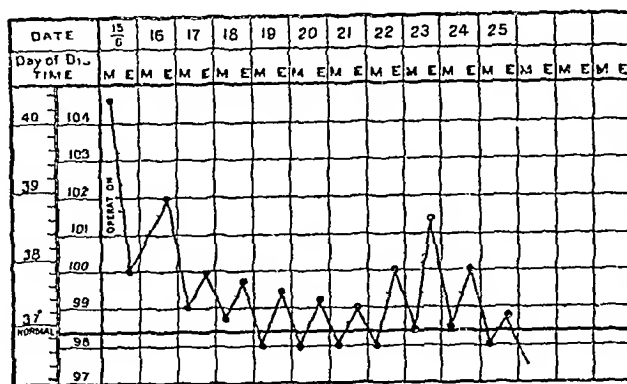
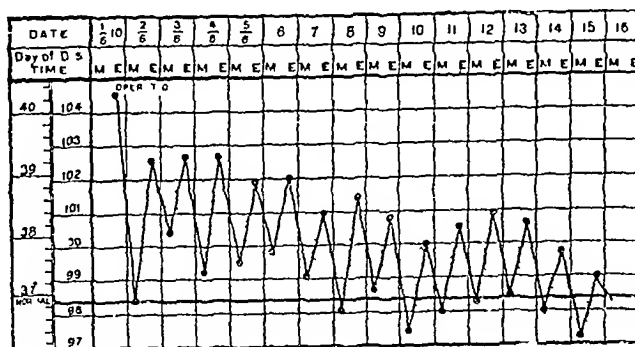
The cord should then be transfixed with a blunt aneurism needle and tied before being removed. The wound should be disinfected as far as possible—packed with iodoform gauze and allowed to granulate. If the case is seen early it will not be necessary to ligature the cord so high up. In one case the testis was spared and the patient lived. If the specimen removed be examined it will be seen that the testis as a whole is swollen and inflamed. The sac of the tunica is distended with yellowish sero-purulent fluid—odourless—with yellowish coagula of lymph in it. The surface of the tunica is very red from intense injection may be covered with a continuous and yellow pedicle of coagulated lymph. The outline of the constituents of the cord is obtained by the general infiltration of the cord with coagulated yellowish material distending the cellular tissue of the cord. On section the spermatic veins are obliterated and distended by soft purple black coagula, which adhere to the walls of the vessels. If the case is of a week's duration the tissues surrounding the cord are also swollen and infiltrated with yellowish exudation. Major Rogers has kindly examined this exudation in several cases and grown cultures on agar-agar. Inoculation of one culture on one rabbit failed to produce symptoms.

He reports in one case "very numerous streptococci microscopically and from culture of blood agar obtained. Microscopically the tissue (of the cord) shows very marked inflammatory changes and in the lymphatics a fibrinoid exudation embedding leucocytes."

After operation the temperature falls rapidly,—the signs of impending septicæmia clear up and in a week the patient is convalescent. If the patient has been left beyond the fourth day, still more if beyond the sixth day, the prognosis is very grave despite operation.

The following cases some of which have been reported in the Annual Report of the Medical College, Calcutta, are appended—

Case 1—N E W, pure European, æt 30, formerly a soldier—much debilitated by malaria—



admitted for "ague" for four days, accompanied by swelling of the right side of the scrotum for four days. The patient was in a state of impending septicæmia, the local one was typical as described above. The cord was isolated by the incision described above and ligatured at the brim of the pelvis. Patient made a rapid and good recovery.

Case 2—European soldier, æt 45, patient gravely septicæmic on the 6th day of attack, right cord ligatured—pus formed in cord—death from septicæmia.

Case 3—Bengali tradesman, æt 45, attack six days, grave septicæmia, right side affected—yellowish brown pus in cord, cord not ligatured and divided by the doctor who attended the case. When seen in consultation the man was moribund. The doctor who operated, infected his finger and developed a subpectoral abscess, which was opened, below the clavicle. The same coloured pus yellowish brown was found in his abscess. He recovered.

Case 4—Bengali landowner, æt 53, seen on 6th day, cords affected. He was moribund at the time of operation, the sacs were opened and drained—the cords incised—not removed, death in twenty-four hours.

Case 5—E W, European, æt 35. Rigor with rapid oedema of scrotum. "Ague" for three days. Right testis affected—grave septicæmia. On incision the oedema of the cord was commencing, extending upwards for an inch and a half, tunica was laid open. The constituents of the

cord were separated by the finger, but no incision was made. The temperature fell from 102° to 99° within eight hours, and the patient made an uninterrupted recovery.

Case 6—R M, Eurasian clerk, æt 24, 4th day of attack—was awaked from sleep by intense pain in the testicles—the scrotum swelled up in a few hours—nausea and continued vomiting developed with high fever, $104^{\circ}5$, right side found to be affected, excision of the testis and cord. The temperature gradually subsided in six days, with the improvement of his symptoms. He narrowly escaped from death by septicæmia.

Case 7—D J M, Hindu clerk, æt 30, seized on his arrival at office in the morning with severe pain in the scrotum. Ice applied locally and "fever" medicines given, without avail, admitted on the 6th day in a septicæmic condition. Temperature 104° with swollen testis and hardened cord on the left side. Excision of the testis and cord gradual recovery from the septicæmic condition.

SOME POINTS ON THE SURGICAL TREATMENT OF TUBERCULOSIS

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THE treatment of surgical tuberculosis forms a large part of our work in India. Although the cases which come under this category do not afford such opportunities for brilliant and interesting surgery as some other affections, a fair need of success in their treatment will be a source of considerable satisfaction both to the surgeon and his patient.

This can only be obtained by well planned and thorough operative procedure, as partial interference is worse than useless.

A description of methods which have been used with considerable success in two or three of the commonest conditions, although it covers old ground, may yet be of some value.

The conditions dealt with in this paper are—

1. Tubercle of Cervical Glands
2. Tubercle of Knee and Ankle-joints

1. Excision of cervical glands when successfully carried out is one of the most satisfactory operations in surgery. Of the advisability of removing local tubercular foci, there can be no question. By so doing we remove an ever present danger of the disease being disseminated to other parts of the system, and in the case of cervical glands the disease is in very many cases localized, for the bacilli have just gained an entrance by the adenoid tissue of the mouth and pharynx and are temporarily arrested by the cervical glands. Therefore in early cases we have good grounds for believing that we are eradicating the disease entirely from the system.

Experience has shown that treatment by vaccines may cause considerable diminution in the size of

the glands but rarely is a complete cure effected by non-operative procedures when caseation has occurred. Besides the latter method is a slow one, and the Indian patient as a rule will not remain in hospital for a sufficiently long period to give the method a fair chance. The deep cervical glands are those chiefly affected. They are found along the course of, and adherent to the internal jugular vein under the sterno-mastoid muscle. The tonsillar gland lying just below the angle of the jaw is usually most enlarged. Around this region we may also have any of the following glands affected.

Sub-maxillary, sub-mental, parotid and the glands and the posterior and sub-laryngeal triangles—A thorough knowledge of the anatomy of the neck is therefore essential. The most important point to remember is that every diseased gland must be removed, and that a diseased gland is not necessarily much enlarged, for it has been demonstrated by microscopical examination that glands not larger than a pea may be riddled with tubercles. Therefore in all cases where the operation is undertaken our incision should be such as to expose the whole chain which should be cleanly dissected up and removed *en masse* as if we were dealing with malignant disease. If the palpably enlarged glands only are removed, our first incision will scarcely have healed before a second crop of enlarged glands will have appeared. Digging and scraping must be avoided. Only clean dissection in a bloodless field is satisfactory.

The most favourable cases for operation are those in which the caseating glands are still retained in their envelope of deep cervical fascia. If any have burst through or formed abscesses under the skin they should first be dealt with by thorough scraping and disinfected with pure carbolic, and radical operation should be postponed until these abscesses and fistulous tracts have healed, as otherwise infection of the operation wound would probably occur.

The Operation—The incision should extend from the cornu of the hyoid bone to the apex of the mastoid process, along the natural fold of the skin, a finger's breadth below the angle of the jaw, and if the glands of the posterior triangle are affected a second incision, parallel to the anterior border of the trapezius downwards as far as may be necessary, meeting the end of the first incision at the angle of the jaw, should be added. The external jugular vein is cut between double ligatures at the posterior end of the wound and the flaps of skin, platysma, and deep cervical fascia are dissected up and widely retracted.

The deep fascia is then cut along the anterior border of the sterno-mastoid, the sterno-mastoid is separated from the underlying fascia and well retracted so as to leave the field of operation clear. Several important structures have now to be defined in order that the operation may be done with confidence. These are, the spinal

accessory nerve, the internal jugular vein and the posterior belly of the digastric muscle

The posterior belly of the digastric muscle will be found lying at the upper angle of the wound passing downwards and forwards from the mastoid process

The spinal accessory nerve passes from beneath the digastric muscle obliquely downwards to enter the deep surface of the sterno-mastoid muscle about $1\frac{1}{2}$ " below the mastoid process. It crosses in front of the prominent transverse process of the atlas which serves as a guide to its position

The internal jugular vein lies below and parallel with the sterno-mastoid muscle and enters the neck under the posterior belly of the digastric. This vein should be defined at its upper end at an early stage as in this situation it is tied in cases where the glands cannot be dissected off without injury to the vein

There is always a certain amount of venous hæmorrhage which should be temporarily controlled by hæmostatic forceps in order that the fields of operation may remain dry. The internal jugular vein should usually escape injury. If slightly cut the bleeding is temporarily stopped by hæmostatic forceps, and at the end of the operation the vein may be sutured. More serious injuries of the vein will call for resection of the vein between ligatures. In cases where the glands cannot easily be dissected off the internal jugular vein, it is often better to tie the vein at the lower part straight away, and after dissecting it up along with the glands, to tie it at the upper end and remove it

Starting from below the glands can be rapidly dissected off the vein by the *sharpest* of knives, the edge of the knife is directed towards the glands and the vein falls away from the mass and is retracted by a blunt hook. The only other aid to dissection is a piece of gauze on the end of the finger—all so called "dissectors" are clumsy and dangerous and lead to tearing of veins and bursting of attenuated gland capsules. By this method the glands are removed *en masse* and the vessels are clamped when cut so that the wound remains dry and there is no working in the dark. At the end of the operation a clean dissection of the neck is exposed, the cut vessels are tied and the wound stitched up with thin silkworm gut and a small rubber drain left in at the most dependent part. The drain is removed at the end of three days, and the wound should heal by first intention and leave only a very slight scar

2 *Tubercle of Knee and Ankle-joints*—Resection is required when conservative treatment has been given a fair trial. Good results are got in selected cases. Efforts are first made to disinfect suppurating sinuses, otherwise healing is very protracted. The incision and method of fixation of the bones only will be referred to. The incision which has given greatest satisfaction is Kocher's

It begins about 3" about the joint and passes vertically downwards a finger's breadth external to the outer border of the patella and curves inwards about 1" below the tubercle of the tibia and ends at the inner side of the crest. It is carried right down to bone and at the lower part the edge of the ligamentum patellæ is defined. The portion of the tibia into which the ligamentum patellæ is inserted is chipped off to preserve the quadriceps extension tendon intact. This allows the whole of the inner flap to be everted and turned inwards so that the under surface of the patella looks upwards. A very good exposure of the joint is obtained, and there is no difficulty in getting to its remotest recesses and removing the diseased synovia. The joint can now be fully flexed and the diseased ends projected and removed. At the end of the operation the tubercle of the tibia is sutured into position with catgut, thus securing the quadriceps flap

Fixation—A square nail about 6" long is entered through the skin below the tubercle of the tibia and driven upwards and inwards to enter the lower end of the shaft of the femur. It secures perfect immobility of the bone surfaces in contact and does away with the need of elaborate fixation appliances which often fail in cases where the joint may have to be dressed afterwards. The nail becomes loose and can easily be removed about three weeks afterwards when the bones have become more or less united. The same mode of fixation is just as useful in the case of the ankle-joint. The nail is passed through the skin of the heel directly upwards through the os calcis and lower end of the shaft of the tibia. The most useful incision in the case of the ankle is Kocher's, beginning about 2" above the external malleolus along the posterior border of the fibula. It goes down through periosteum to bone and is carried from the external malleolus downwards to the peroneal tubercle, and then it is made to gradually curve upwards to end on the dorsum of the foot at a point about midway between the external malleolus and little toe. On reflecting this flap and cutting through the external and anterior ligaments and capsule of the joint, the foot can be completely inverted, and a satisfactory display of its diseased synovia and bony articulations obtained

These short notes on the practical details of some every-day operations have been evolved entirely from practical experience gained by the author who hopes that on that account they may be of some little value to others

PENETRATING WOUNDS OF THE ABDOMEN ILLUSTRATING THE RECUPERATIVE POWER IN NATIVES OF INDIA.

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NUMEROUS cases of penetrating wounds of the abdomen have come to my notice during my

service, but a series of crises which have occurred within the last few years at Dehra Dun, and of which details are given below will serve to illustrate my point viz., the remarkable manner in which Natives of India recover from injuries which one might expect to prove fatal, either owing to shock, peritonitis, hæmorrhage, septicæmia or other cause. In fact their power of recovery from these injuries, frequently neglected or improperly treated in the first instance, appears to be quite out of proportion to the physical strength or stamina of the individual, and to compare favourably with the recuperation power of Europeans. I regret, however, that I am able to illustrate this last point by only one case which I give last.

Case 1—Bhajan, a Hindu male, was brought to hospital in a bullock cart on 28th April 1907, having been gored by a bullock four hours previously. A portion of the small intestine distended with flatus, protruded through a punctured wound of the abdomen, near the umbilicus and shewed a small wound through which fecal matter was oozing. The surface of the intestine was wrapped in a dry cloth. On arrival, the intestine was cleaned with sterilised water, the intestinal wound closed with a purse string suture, the intestine after anointing with sterilised *ghī* returned, and the abdominal wound closed. The patient left hospital completely recovered one month after admission.

Case 2—On the morning of the 1st June 1909, I found a large crowd in the hospital compound, and in their midst lying on a *charpai* a woman, Musamut Kaiman, aged 40 years, her clothes saturated with blood and she, at first sight, dead. Her paramour had attempted to murder her with a large and sharp clasp knife. Placed on the operating table she was found to have sustained an incised wound 5 in long which divided the cartilages of the 5th, 6th and 7th ribs on the left side anteriorly, divided the pleura, the lower lobe of the left lung and the diaphragm and exposed the pericardium, so that the heart beats were visible. The entire stomach protruded through the wound at the lower angle. She appeared to breathe through the wound, no breath being perceptible at mouth or nose, so much so that chloroform anaesthesia was performed through the wound. In addition to the above there was an incised wound 5 in long in the left lumbar region through which the descending colon protruded, shewing two wounds through which fecal matter was passing freely. Besides these wounds she had six flesh wounds, of the head, back, thigh, and knee, of varying depths. I replaced the protruding stomach, sutured the slit in the diaphragm, brought the ends of the costal cartilages together by deep sutures passed through the intercostal muscles and closed the skin wound with a continuous suture. The wounds in the descending colon were closed by Czerny Lembert's sutures, the bowel returned, and the external wound closed, while the remaining six gashes were sutured. Once during the operation it seemed useless to

proceed as the woman was to all appearance a corpse.

Strychnin and ether injections, however, revived her, and she was finally placed on a bed and conveyed to the ward. In the first 24 hours her condition appeared hopeless, but after this she shewed signs of rallying, and from the second day onwards, except for the fact that the intestinal sutures gave way leaving a fecal fistula which subsequently closed, she made an uninterrupted recovery, the wound of the chest healing by first intention, and was discharged cured rather less than two months after admission. It may be that the stolidness of the native aids their recovery—when asked on the 4th day how she felt, she replied—"There is a pain in the chest" she made no other complaint. It may be remarked in parenthesis that from a medico-legal point of view this case was an interesting one. Had the woman died, her assailant would have been, in all probability, hanged, as it was he received a life sentence, and she, by her recovery, cheated the hangman.

Case 3—Patahi, a Hindu labouring woman, aged 25 years, was admitted into hospital on 25th July 1910. She had been gored by a bullock nine hours previously. There was a lacerated wound of the right inguinal region, through which a loop of the small intestine with a portion of mesentery protruded, covered with mud and coagulated blood. The intestine and mesentery were washed with boracic lotion, smeared with sterilised *ghī* and returned, and the abdominal wound was closed. The wound healed by first intention, and woman left the hospital exactly one month after admission.

Case 4—Kundan, a Hindu boy, aged 13 years, was brought in a *dooly* on 23rd February 1910 from the Saharanpur District, some 30 miles from Dehra. He had been gored by a bull, some 48 hours previously. A lacerated wound 5" x 2" extended from the right hypochondriac to the lumbar region. The wound was full of clotted blood, and charred cloth introduced by the villagers after reduction of the protruded intestine to stop hæmorrhage. His appearance was anæmic from loss of blood, his temperature was 101°F, and the pulse very weak. The wound was cleaned with mercurial lotion and subsequently healed with a certain amount of suppuration. He left hospital quite well rather more than a month after the accident.

Case 5—Shahzad Singh, police constable, 3½ years of age, was admitted into hospital on 7th July 1910. There was a punctured wound inflicted by a clasp knife, $\frac{1}{2}$ " long and 2½ inches deep in the left lumbar region. The pulse was weak and compressible, there was slight hæmorrhage from the wound, and it appeared from its direction that the peritoneum at least had been injured, it was not, however, certain whether the bowel had been injured, and it was decided to play a waiting game. I contented myself, therefore, with dressing the wound antiseptically and withholding food.

for 24 hours, maintaining absolute rest in bed. He complained of slight abdominal pain after taking a small quantity of milk on the 8th, and on the 9th there was some slight distention of the abdomen. On the 13th he passed a motion for the first time since the injury, which was formed and contained a considerable quantity of altered blood. Stools were passed daily after this, and no further appearance of blood was seen. He left the hospital cured, six months after the receipt of the injury. It would appear from the passage of altered blood that the intestine had been punctured, and one can only say that the result justified the treatment adopted.

Case 6—I place this case next the above, because the wound in this instance was a very similar one, the treatment adopted was the same, but the patient died. The man in this instance was a European.

Mr W —, aged 30 years, was brought in from Doiwala on 23rd May 1909, having been injured in the railway accident which occurred there. There were two minor contused wounds of the scalp, and some bruises and scratches on the chest, back and abdomen. Besides these there was a punctured wound of the abdomen, in the left lumbar region $\frac{1}{4}$ " long \times $\frac{1}{8}$ " broad from which a small quantity of blood kept oozing. This, however, ceased on the application of solution of adrenalin. The patient was suffering from extreme shock, and it was decided to await events. For the first two days the condition remained very low, the temperature remaining sub-normal. On the 3rd day the condition appeared considerably improved, and milk was retained in small quantities, the temperature in the evening being 99.6. The bowels were moved by an enema on the 5th day. On the 8th day the minor wounds had healed, and the abdominal wound was in process of healing, the general condition was much improved, and the prognosis appeared good. On the 1st June the temperature rose suddenly to 103.2 in the evening and thereafter assumed a hectic type. The bowels were moved by enema on the 2nd June, and on this date there was no distention of the abdomen, but in the 3rd distention was marked and troublesome vomiting ensued. On the 4th June the symptoms were aggravated, and the advisability of an exploratory operation was discussed in consultation, but the idea was abandoned on account of the extreme weakness of the patient. He gradually sank and died on the 6th June, or fourteen days after the receipt of the injury. The abdominal wound had remained healthy throughout, the bowels had been moved, there had been no apparent signs of internal suppuration, but yet the symptoms appeared to be those of death from septicæmia. It is possible that some internal organ other than the intestine had been injured, but no complaint of pain had been made, and no symptoms were observed. It is, of course, impossible to say that a native of India would have recovered under similar circumstances, but

my impression is that his chances of recovery would have been greater.

A TREATMENT OF SENILE ENLARGEMENT OF THE PROSTATE AND ACUTE INFLAMMATION OF THE PROSTATE

By HENRY SMITH,

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My experience of senile enlargement of the prostate in the Punjab is now considerable. The large adenomatous prostate so commonly seen in white men we so seldom see in the native of the Punjab that I might say that, for practical purposes, it does not exist in the native of the Punjab. It is not enough to reply to this remark by saying that they exist but that we do not see them. I know enough to know that the people come freely to my hospital with everything. The usual prostate which I see in old men is a small hard prostate, in many cases senile cancer of the prostate. These cases give the patient as much trouble as if they were the size of an orange and as regards the surgeon they are immensely more difficult to deal with.

In my early experience I was a follower of Fieyer and tackled them by the suprapubic route. By this route, they were so firmly anchored that enucleation was no easy matter, hæmorrhage was objectionable in quantity, and, generally speaking, the results were bad. Hence I gave up the suprapubic route entirely. I then proceeded to make a lateral lithotomy wound. I passed my finger by this wound into the capsule of the prostate and enucleated first one side of the prostate and then the other commencing with the lateral aspect of each side and tearing it off the urethra and septum. It comes away thus in two pieces. When a middle lobe was present I dealt with it direct. The hæmorrhage in these cases too was considerable, and by a simple lateral lithotomy wound I could not get at it to twist the bleeding points.

I then made a crescentic wound from *tuber ischium* to *tuber ischium* in its convexity about an inch in front of the anus. I separated the anus and lower part of the rectum from the distal or penile half of the prostate. With a median staff in the bladder I took the staff in one hand and turned it so that its groove would be postero-lateral, into which I passed, the knife at the apex of the prostate and on into the bladder making a lateral incision. I then turned the staff to look postero-lateral in the opposite direction and made a corresponding cut in the other side, so that the V-shaped tongue left by the junction of these two cuts would have in it the median septum and the termination of the seminal ducts which would thus be out of the way and out of danger. I then pass a finger into the capsule of the prostate in one side and

enucleate it by working round it from the lateral aspect and finishing by enucleating that lateral half from the urethra and posterior septum. I then repeat the process with the other lateral half. If there is a median lobe I deal with it direct. By this method we need not injure the anterior part of the urethra. We need not injure the seminal ducts. By this method all bleeding points can be caught with forceps and twisted in proper surgical fashion, as they are visible (I put a couple of deep stitches in one side of the skin wound and leave an opening for drainage as in lateral lithotomy). By this method proper drainage is secured, and the wounds heal up as quickly as in an ordinary lateral lithotomy and the results are good.

I wish here to refer to the use of hot sponges and hot douches to stop hæmorrhage. My experience is that they are an utter delusion, and I believe that the man who depends on them is only deceiving himself. No doubt this is a heterodox statement, but the surgeon has only to open his eyes to see that it is true one. I have gone even further than hot sponges and hot douches. I have tried a piece of iron with a knob on the end of it lifted out of boiling water and placed it on the bleeding point and found that it too was useless, if the oozing was of any importance though it was not enough to sear dry tissue. So deal with bleeding points in surgical fashion they must be caught and twisted or ligatured.

By the suprapubic route I regard the surgeon as absolutely helpless to deal with hæmorrhage such as frequently occurs in connection with the enucleation of these of the small prostates.

Loss of blood or prolonged general anaesthesia or both combined we all recognise as a very serious thing in old men, and especially so in those operations in which the patient is liable to post-operative shock of which enucleation of the prostate is one. By the perineal route the surgeon is master of the situation. In short, the perineal route is the surgical route for removal of the prostate whether it be large or small. To counteract the tendency to post-operative shock to which these patients are subject, he should get a pint or two of a hot saline enema and a hypodermic of 20 m of tincture of opium before he regains consciousness. Opium thus given is in my observation better than morphia and is incomparably the most potent agent we possess for this purpose given thus.

I got Young's (Baltimore) instrument for perineal prostatectomy and read his interesting papers which he kindly sent me with care. I proceeded to do his operation and found that in the small prostates I get in the Punjab, when finished I had always opened the bladder. The object of Young's operation was thus defeated. The rationale of his operation is to incise the membranous urethra (as in Keith's operation for stone) to pass his tractor by this route into the bladder and with it to draw down the prostate, split the

capsule in each side of the middle line, and through these openings so enucleate the lateral halves and if a middle lobe is present to get pressure on it with the tractor and enucleate it through one of the lateral wounds in the capsule and to do all this without opening the bladder. When I found that by this method, when finished, in the small Punjab prostate I had always opened the bladder I saw no object in the complicated method of Young and found it much more rapid and easy to accomplish the same end by going at it direct as I do.

No doubt Young's method looks very nice on paper, is the ideal method on paper, and I have no doubt is equally ideal in practice in large adenomatous prostates such as are so frequent in white men, and if I were dealing with such I would adopt it. Young's results are marvellously good and imply that he is a brilliant operator.

I now tackle the Punjab prostate by the route I have above approved of with as much confidence as I do a lateral lithotomy in similar subjects.

ACUTE INFLAMMATION OF THE PROSTATE

It is interesting to look over the section devoted to this subject in text-books on surgery written in many instances by genito-urinary specialists, and to observe the temporizing and hesitating methods of treating it and the advice that if the abscess finally bursts into the bladder or rectum that it should be left alone to drain by either route. It is, in my opinion, one of the serious diseases very often left to nature's course and very often not diagnosed until it either spontaneously bursts or is accidentally burst in the passing of a catheter. I have frequently asked young men fresh from the schools, Indian and European, and I have so far not met one who ever saw a prostatic abscess operated on.

Acute inflammation of the prostate is a disease of under 50 years of age as a rule. I have seen a case as young as 14 years of age. I see on an average from 6 to 8 cases of prostatic abscess yearly.

The symptoms which are never wanting in acute inflammation of the prostate are the sudden onset of severe pain in the prostatic region, difficulty in passing water rapidly progressing to retention, a constant desire to pass water and an equally constant desire to go to stool both out of proportion to the urine in the bladder and the feces in the rectum.

It is wonderful how rapidly pus forms in acute inflammation of the prostate. I do not think I am overestimating it when I say that it often forms within 48 hours from the onset of severe symptoms, yet we are advised by specialists to go on leeching the perineum, fomenting it and hot douching the rectum and to use the catheter freely for days until evidence of fluctuation appears either in the perineum or in the rectum. By the time fluctuation is detected, the pus will have escaped through the tense capsule. While it is inside the capsule you might as well attempt

to feel fluctuation as in any other tense organ with a strong capsule, *e.g.*, in an acute orchitis or in a whitlow. The sudden onset of the above symptoms in a young man or in a man in the prime of life should induce the surgeon to pass a catheter and at the same time to examine the prostate by the rectum having everything he requires at hand to deal with acute inflammation of the prostate. The catheter in these cases goes further in than normal before it draws off urine and the prostate feels to the finger in the rectum tense and enlarged. The enlargement need not be great. I have found pus in prostates with not very much enlargement. Such being the case the catheter should not be removed as in re-insertion it may burst the abscess. The patient should be anaesthetized. The operator should now pass his index finger (left hand) into the rectum and pass a long knife from the middle of the perineum first into one side of the prostate and incise the posterior portion of its capsule well and make a similar free incision in the other side of the capsule finishing his wound in the skin as in lateral lithotomy. With his finger in the rectum and the catheter in the bladder he has a sound guide for the posterior part of the capsule which he wishes to incise and he avoids opening either the bladder or the rectum. If treated thus the patient is at once relieved and he invariably does well. If the operator has been a few hours too early for pus so much the better, just as in the case of a whitlow.

If the abscess has burst into the bladder or rectum the *laissez faire* policy causes a considerable proportion of the cases to die of septic absorption, the bladder pumps urine into a septic cavity in which it rapidly decomposes and matters rapidly go from bad to worse. The case of the rectum is worse as such prostatic conditions are associated with tense contraction of the sphincter and the result of which is the pumping of faecal matter and foul gas into the abscess cavity followed by septic absorption and frequently by death in either case. When it opens into the bladder the bladder should be opened on a staff as in lateral lithotomy and all will go well. When it opens into the rectum a knife should be passed into the perineum and out through the opening into the rectum and the cut finished into the lumen of the bowel thus cutting the sphincter and as we do in an ordinary *fistula in ano*. In this case matters will go all right.

To illustrate the above, a clergyman, an intimate friend of mine in Europe, developed the typical symptoms of acute inflammation of the prostate. He was writing me a letter 24 hours after the onset of symptoms and casually mentioned them. A few days after his letter reached me he was dead. He was a strong active man in the prime of life. Two general practitioners and a hospital surgeon of considerable standing were attending him. They did not give him a diagnosis for which he frequently pressed them possibly because they had not made one. He

insisted on having a specialist from a considerable distance who, when he arrived, passed his finger into the rectum to examine and in doing so the abscess burst into the rectum. The specialist left doing no more and saying that matters would now be all right. He was surprised to hear that the man died within a week after his visit of septic absorption.

THE IDEAL OPERATION FOR FISTULA IN ANO

BY S. C. EVANS,

MAJOR, I. M. S.,

MASTER OF SURGERY

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WHEN an incision is made into the tissues in any part of the body the rule is to carefully close the wound with sutures. The region of the anus in cases of fistulae is an exception to this rule. It has been thought that the constant movement of the sphincter, the bacteriology of the region, the added infection of suppurating tracts, and the difficulties in the way of sterilisation were an absolute bar to first-intention healing. Hence it is that we are told to lay open and scrape the sinuses, to pack them, and see that they granulate up from the bottom. In 1901 there happened to be a series of fistulae-in-ano admitted to the Sassoon Hospital at Poona and, arguing that one frequently gets perfect union in operations for restoration of the perineum in females, I decided to remove all diseased tissues with the knife and to bring together the edges of the divided sphincter and the walls of the rest of the wound with sutures. My first case was rather an extensive one and the operation took an hour and a half, but the results were indeed surprising. When the stitches were removed on the tenth day, the whole wound had healed soundly. I attribute this result to four conditions—(1) detailed attention to antiseptic technique, (2) removal of every particle of diseased tissue with the knife, (3) the use of smooth non-absorbable sutures, and (4) the introduction of the stitches in such a manner that none of them enter the rectum and none of them traverse any portion of the wound. In other words all the sutures are buried. I have now the experience of over a hundred operations and a period of nine years to support the statement that what I speak of as 'the ideal operation' ought to be the operation of election in all cases. Compared with the commonly accepted procedure of laying open and scraping it is a prolonged operation, and a bit more troublesome, but the results more than compensate one for both time and trouble. The circumstances under which it cannot be carried out in detail are not of frequent occurrence.

Special care is necessary in preparing the patient. He is often an habitual over-feeder and not infrequently an alcoholic. A few days confinement to the wards of a hospital or his house with

a restricted diet and, if necessary, abstinence from alcohol are important points in the preliminary treatment. As a routine I order a purgative every alternate day for three doses and operate on the day following the third dose. For twenty-four hours before the operation he is put on a milk diet or on Benger. On the morning of the operation he gets a copious boric bowel wash which is repeated just before he comes on the table. The parts are sterilized in the usual way. The nurse is instructed to carefully squeeze out as much pus as she can from the fistulæ before cleaning the parts up.

The patient is placed in the lithotomy position with the buttocks well over the end of the table. Where the disease has burrowed far back in the region of the coccyx the parts may be elevated on a sand bag or still better, the patient may be turned on his face. The sphincter is dilated in the usual way and the rectum douched out with sterile normal saline solution or weak biniodide. Beginning at any convenient external opening the main fistula and all lateral diverticula beyond the limits of the sphincter are laid freely open. Discolouration of the surface, a soft feel to the finger, and a probe will guide one to the ramifications of the main tract. Any prominent vessels are now picked up, the surface dried and attention directed to the anal end of the gaping wound. This corner must be explored with the greatest pains, and with the greatest gentleness, with probes of diminishing size, until the rectal opening or, when none exists, the summit of the fistula is discovered. Great care should be exercised at this stage lest the probe, infected from the main tract, be thrust into healthy tissues. The probe is followed by a director and the fistula laid open in such a manner as to divide the sphincter in a radial direction. The incision involves the mucous membrane of the rectum up to the internal opening or, where no such opening exists, to the level of the summit of the tract. A few bleeding points now need picking up.

The next step is to remove all diseased tissue. With a sharp scalpel (the knife must be sharp) a V-shaped piece is cut out of the bottom of the gutters left by splitting open the fistula and its ramifications in such a manner as to remove all granulation tissue. I begin high up and work downwards and I try to remove the bottom of my gutters in as continuous a strip as possible. The section leaves a clean white shiny surface dotted with minute bleeding points. Any undiscovered diverticula are indicated by small dark patches of granulation tissue. These are similarly laid open and then lining excised. This I consider one of the advantages of the procedure. It is not necessary to go prodding about with fine probes to find diverticula. As soon as the granulation tissue lining the main tract is cut away lateral ramifications at once become evident. Attention is now turned to the skin and all thin, discoloured and diseased overhanging portions are trimmed away with scissors or knife.

The next step is to close the somewhat irregular and usually extensive wound with sutures. The material used is silk worm gut and the instrument a perineal needle of the form listed in instrument makers' catalogues as Liston's. The needle must be strong as it has to stand a considerable strain. Most of those found in our hospitals are worthless and will bend with the first stitch. Usually there is not any considerable difficulty in introducing the sutures, but if the patient be very fat or the rectal incision very deep or in the region of the coccyx there may be very considerable difficulty. Under these circumstances needles of the shape known as Cullingworth's or Croft's would probably be more suitable. The left forefinger is introduced into the rectum. The needle is entered at the anal margin on one side of the wound, is made to traverse the sphincter and run just beneath the mucous membrane of the rectum till the summit of the wound is passed. The instrument is then grasped in the full of the hand and its direction forcibly altered in such a manner as to cause the point to travel round the apex of the wound and along beneath the mucous membrane of the rectum till it emerges at the anal margin on the opposite side. During this manœuvre considerable force may have to be used and the depths of the wound are levered towards the surface or to coin a word, the wound is partially evaginated. The forefinger in the rectum guards the mucous membrane from puncture. A series of stitches are introduced in this way. The first three are placed close together so as to bring the tissues in the sphincter region into accurate opposition. The remainder need not be quite so close, but great care must be taken to bring the sides of the entire wound into continuous contact. There must be no cavities where blood can collect. All the stitches are introduced before being tied. A double twist is preferable to a knot especially in the neighbourhood of the anus as there is always, when the time comes for removing the stitches, considerable difficulty in getting the point of a pair of scissors under the loop, the proceeding moreover is very painful. If the stitches are tied with a double twist all that is necessary is to pull gently on one end, trace it down to the twist, cut it off short and pull the other end. The fastening untwists itself and the suture comes away quite easily. A little crescentic tag of skin over the sphincter and irregular tags and bulgings elsewhere will indicate spots where the skin surfaces are not accurately in alignment. This may be corrected by the introduction of a few superficial stitches. Little surface irregularities are often impossible to avoid, usually lengthen the healing process, and are invariably noticed by the patient and his friends. They do not seriously interfere with the results of the operation. The ends of all sutures are left long to avoid the irritation of sharp wire points, are tied up in one or more convenient bundles, and are wrapped up in iodoform gauze. A morphin and iodoform suppository is introduced

into the rectum, the wound dusted freely with iodoform or iodoform and boric acid and dressed with a pad of wool and a T-bandage

The patient's knees should be fastened together and his bowels kept confined with small doses of opium for four days. On the fifth morning he gets a dose of castor oil and as soon as he becomes conscious of commencing action his anus is cocurised and a pint of olive oil thrown up into the bowel. Thenceforward his motions are kept soft by suitable laxatives and the wound is kept scrupulously clean and as dry as possible. The stitches are removed on the tenth day, and dry iodoform or iodoform and boric acid dressings continued till all superficial tags have healed.

The results of the operation are excellent—six failures out of 107 cases. Occasionally the innermost stitch breaks down, sometimes the deeper portion of an outlying diverticulum will suppurate and burrow along the old track towards the rectal wall. One of my failures was of this nature. In any case the patient is no worse off than he would have been with the old operation and the parts that have healed will have saved him something.

The advantages of the operation are that it saves the pain and trouble of repeated dressings, that the convalescent period is reduced to about a fortnight, and that it does not leave extensive areas of dense scar tissue to hamper the performance of any subsequent operation that may be needed. I have never seen incontinence follow any of my operations.

Very fat patients, very deep burrowings close to the rectum and in the neighbourhood of the coccyx may render coaptation difficult and occasionally impossible. In cases in which there are two openings into the rectum, it is better to make sure that one has healed before dealing with the other lest one or both break down and incontinence result.

THE OPERATIVE TREATMENT OF HYDROCELE

By C HUDSON, D.S.O.,
CAPTAIN, I.M.S.

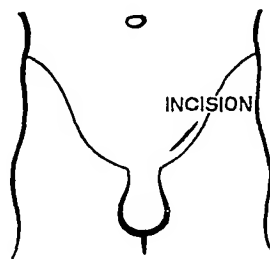
Indication—Operation is indicated in all cases except in elderly men, and those suffering from debility or syphilis since tapping is of little use, and injection tedious and painful.

Preparation—The parts where the incision is to be made are shaved and washed the evening before operation. They are painted with Tincture of Iodine on the morning of the operation, and again just before operating.

Operation—The penis and scrotum are covered over with sterilized towels, and also the area around the skin incision. The skin incision is 2 or 3 inches in length, the centre being nearly over the External Abdominal Ring. It

is curved slightly downwards towards the scrotum.

The incision divides the skin and superficial fæcia, and a branch or two of the External Pudic Artery. These branches can be caught before division by Spencer Well's Forceps, in which case in an operation for a thin walled sac there is practically no bleeding at all.



The cord is defined and followed down by the forefinger into the scrotum and the sac of the hydrocele gently separated from the surrounding areolar tissue.

If the hydrocele is too large to be drawn out of the wound, it is brought up into the wound and tapped by a trocar and cannula and then delivered.

The proceeding now varies as to whether the sac is thick or thin.

If thin, the parietal layer of the tunica vaginalis is incised and opened from top to bottom and then everted. One fine suture is inserted through the cut edges of the parietal layer of the tunica vaginalis to keep them behind the testicle. The whole is then returned into the scrotum. The skin incision is sutured with silkworm gut and the line of sutures painted over with tincture of iodine, and a dry dressing applied.

In the case of a thick-walled, or an unhealthy-looking sac the parietal layer is excised up to its reflection on to the epididymis—all bleeding must be most carefully stopped.

The testicle is then returned into the scrotum and the wound sutured and treated as above.

If there is any doubt as to whether the bleeding has stopped completely or not, it is better to pierce the bottom of the scrotum with a knife and place in a drainage tube for 24 hours.

The skin over the area where the drainage tube enters can be readily sterilized by painting it with tincture of iodine.

Remarks—The operation in the case of thin-walled sacs is extremely rapid and easy.

There is no after-swelling if the tissues have not been roughly handled.

The Spica bandage on the groin is comfortable compared to that used on the scrotum with the customary incision.

The incision never suppurates as it is well away from the penis and scrotum.

The operation in the case of thin-walled sacs is Piatt's operation with a low hernia incision. In the case of thick-walled sacs, the usual "Excision" operation with the same incision.

The incision has been used in all cases since June, 1907, with entire success, and is, I consider, the best incision for hydrocele and varicocele.

A CURIOUS CASE OF FISTULA IN ANO

The patient was first seen by me on 28th July 1910. The history was that the fistula had been present for several months, and during this period there had been a continuous discharge of pus and faeces from the external opening.

On examining the part, a probe passed in from the external opening entered the anal canal about one inch above the external sphincter. The passage of the probe was difficult on account of a hard gritty mass which lay in the fistulous track and felt like a phosphatic stone.

The case was operated on the following day. The fistula was slit up and it was found that the substance on which the probe had impinged was a piece of chicken bone about an inch long and a quarter of an inch in diameter. The bone was quite hard and showed very little change. Its lower end was sharply pointed. The bone was laying loose in a cavity whose walls were firm and fibrous, and my impression was that the pointed end of the chicken bone had ulcerated through the wall of the bowel and given rise to the fistula. The shape of the cavity and its accurate adaptation to the shape of the bone supports this belief.

NOTES ON THE TREATMENT OF STRICTURE OF THE URETHRA, AND OF FISTULÆ

By P. C. GABBLITT,

MAJOR, I.M.S.,

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It is very doubtful whether a urethra of which the lumen has become narrowed by inflammatory thickening extending beyond the mucous membrane can ever become free from the tendency to more or less gradual recontraction of its lumen, even excision of a stricture must leave a scar—and it is the nature of scar tissue to contract unless there is some opposing influence.

I have seen a urinary fistula form in the perineum of a patient who had been told that he was "cured" by internal urethrotomy five years previously, and had noticed no symptoms of recurrent stricture during that long period—if he had had a sound passed only once a year

after the urethrotomy he would probably have never had any further trouble.

The average native patient is a firm adherent to the Eastern belief "sufficient for the day is the evil thereof." It must be admitted that his stay in the hospital during the cure of his stricture is probably a painful and disagreeable experience as few urethrias ever become quite tolerant of the passage of sounds, it is therefore natural that he should rejoice in his escape and only return when his urethra is of no further use to him as a channel.

In some cases he may endeavour to follow the advice given to him on leaving hospital and making a journey, of perhaps twenty miles, presents the note "requires full dilatation once a month" to a Dispensary Hospital Assistant. The equipment of this dispensary probably consists of an imperfect set of silver catheters kept in what was once a velvet lined case, a set of gum-elastic catheters, which have become more or less glued together by the heat, and a bottle of carbolic oil.

The patient may with luck escape a false passage and septic infection, but he is extremely unlikely to have had his stricture efficiently dilated.

It is no wonder that so many patients are met with whose perineums are converted into watering pots and their urethrias have become either "impassable," or if a sound can be passed, the passage is like that of a bullock cart over a bad country road—so bad that it is often difficult to say whether or not there is really a road at all. The most efficient way of dealing with such cases is to make a permanent opening in the perineum.

Any urethral surgery which involves tying in a catheter or even repeated passage of a catheter in such patients is not altogether free from danger.

The urinary apparatus has been overstained for years and is possibly septic from end to end, so that very slight trauma or infection is sufficient to initiate serious developments.

In the examination of such cases a set of conical steel sounds will give the experienced hand all the information necessary. There is rarely anything to be gained by wasting time with whalebone or filiform bougies—even if a few drops can still find their way out by the meatus.

There is perhaps no branch of surgery in which experience is more necessary and is more dearly bought than in the treatment of strictures. The hand must be educated as well as the judgment.

Compare the effects of the untrained hand in passing a sound through a stricture, or for that matter through many a normal urethra, with the light confident movements of the practised hand.

It is no easy accomplishment to gather information from the end of a sound. I have practically discarded flexible bougies and catheters altogether, retaining only the India-rubber catheter for tying into the bladder or for drawing off urine through normal urethras.

The most valuable part of my equipment consists in a set of solid steel conical sounds—the largest being 17–19 English scale.

They can easily be boiled (a drachm of liquid vaseline is boiled in the water with them) and passed without any handling. The most dangerous and useless weapon, especially in unskilled hands, is the sound or catheter below size No. 6, with a point like a knitting needle. These weapons have been responsible for many false passages and should not be allowed in the equipment of any out-patient department or dispensary, if they are there, they are sure to be used.

I do not think that any serious attempts should be made to pass or dilate a stricture without a general anæsthetic. It is rarely possible to pass an undilated stricture without causing pain, and I have not found the injection of cocaine and adrenalin a very reliable analgesic for this purpose. If No. 12 sound reveals the existence of an organic stricture, put the patient on your list for the operation theatre.

EXTERNAL URETHROTOMY IN IMPASSABLE STRICTURES

A long incision should be made, splitting the scrotum, if necessary, until the healthy urethra in front of the stricture is thoroughly exposed.

An attempt should then be made to trace and dissect the urethra for some distance from out the rigid scar tissue through which it runs in the perineum. It is a great help if this can be done before opening the urethra in front of the stricture. The urethra is often dragged quite away from the middle line and in that part of its course is really only a cord imbedded in scar tissue. There are usually numerous fistulæ which serve to still further confuse the operator.

Even if the point of a sound, passed as far as it will go, be cut down upon, it may be found to be in an old smooth false passage on pouch.

When the urethra has been opened in front of the stricture, search is made for the posterior opening in the usual way.

If the prostate be stripped by the finger of an assistant, the appearance of a drop or two of prostatic secretion may be of great assistance in identifying the posterior urethra.

By employing spinal anæsthesia I have twice been able to avail myself of the ability of the patient to pass urine when asked to do so.

If the posterior opening cannot be identified, a transverse incision may be made, so as to separate the urethra from the rectum and so

come upon the dilated urethra behind the stricture.

This method may be tried in preference to retrograde catheterism.

I have never found much use in the hook of the Wheelhouse staff. A pair of urethral forceps passed down to the stricture and opened serves the same purpose better.

Sometimes it is advisable to abandon the operation for the time and resume the search a few days later when the urethra may perhaps be identified by placing the patient in the lithotomy position and asking him to pass urine. The absence of oozing of blood will render the search easier.

I have found a female catheter to be an instrument that finds its way very readily into the bladder from the perineum.

It is usually worth trying to obtain primary union of the urethra by suturing it over a soft rubber catheter. If the attempt fails, no harm is done, provided a way of exit be left along a gauze drain.

The soft catheter may be passed by catching its point as it emerges from the anterior urethra in a pair of forceps and guiding it along a gorget into the bladder.

Whenever a catheter is tied into the bladder, morphine should always be given so long as it does not cause any hæmaturia.

The only safe way of retaining a catheter is by a suture through the prepuce knotted round the catheter; the patient cannot readily pull it out when secured in this way.

Cock's puncture should never be required—it was only an operation of urgency and is better replaced by a supra-pubic tapping.

I have never found any use for a Syme's staff.

Treatment of Fistulæ—When the urethral canal has been thoroughly restored, the fistulous tracks may be dealt with by (1) excision, (2) incision and scraping.

If the fistulous track is well defined, running in soft healthy tissue, excision and suture will be the operation of choice. In a rigid perineum maddled with fistulæ, excision of the fistulæ will be impossible. If external urethrotomy has been performed, the fistulæ may be dealt with at the same time, so that advantage may be taken of the drainage of the bladder either through the urethrotomy opening through a tied-in catheter.

If no external urethrotomy has been performed, it is advisable to tie in a rubber catheter for a few days after excision of a fistulous track, so that the chance of primary union may not be interfered with by the leakage of urine, although leakage will not necessarily prevent eventual closure of the track. In conclusion, I would emphasize the point that urethral surgery is an excellent school for patience.

Indian Medical Gazette.

OCTOBER

THE ETHICAL TEACHING OF LANFRANK

LANFRANK, who was in Paris in 1295 and is looked upon as the founder of French Surgery, says, in the English version transcribed in 1380 (*Early English Text Society*, No 102, p 8) —

"Needful is it that a Surgeon be of a complexion well proportioned. He must have hands well shaped, long small fingers and his body not quaking. Also he must be of subtle wit, for all things that belongeth to surgery may not with letters be written. Be he no glutton, nor envious, nor a raggard, be he true, humble and pleasingly bear himself to his patients, speak he no ribaldry in the sick man's house, give he no counsel but if he be asked, nor speak he with no woman in folly in the man's house, nor chide he with the rich man nor any of his house-hold, but courteously speak to the sick man and in all manner of sickness promise him health, although you despair of him, but nevertheless tell his friends the truth. Love no hard cures and undertake no desperate cases [sic]. Help poor men as far as possible and ask good reward of the rich. Praise he not himself with his own mouth, nor blame he over sharply other leeches. Love he all leeches and clerics and as far as possible make he no leech his enemy. So clothe he himself with virtue that he may obtain a good name and a fair reputation. This is the ethical teaching."

A MASTER SURGEON OF THE 14TH CENTURY

In a delightful reprint by the Early English Text Society, Mr D'Aicy Power, of St Bartholomew's, has written a very interesting note called "Forewords" on the history of John Ardeine, a Master-Surgeon of the fourteenth century, whose treatise on fistula in ano is reprinted by the early English Text Society.*

John Ardeine was born in 1307 and resided much on the continent and was surgeon to John of Gaunt, "time-honoured Lancaster,"

and served in the wars against the "Moors" and is said to have been present at the battle of Crecy. He was one of the surgeons "of the long robe," so called to distinguish them from the barbers who were surgeons of the short robe. In England such consulting surgeons, as we would now call them, always had the prefix Magister or Master. In his treatise on fistula Magister Johannes de Ardeine sets forth his ideal of the morals and etiquette of the highest class of surgeons—the Masters of Surgery—during the thirteenth and fourteenth centuries, and shows that it is at least as high as it is among the best men of to-day. Pity, charity, continence in all things, the patient first, but the fee not unimportant, because, then as now the labourer was worthy of his hire, were the distinguishing characteristics of the educated surgeon.

Mr D'Aicy Power in his interesting "Forewords" goes on to quote from the words of other Masters of Surgery and especially from those of Master Henry de Mondeville, whose works have been edited in French by Prof E Nicaise. De Mondeville had also a high ethical standard, similar to that of Lanfrank which we quote above. We need not quote it but the following extracts on the eternal fee question are amusing and of considerable interest —

"The surgeon ought to consider three things when a patient comes to see him and arrange about the fee for an operation. First, his own position, secondly, the condition of the patient, thirdly, the state of the disease. As regards himself, the surgeon should think whether he is celebrated or at least better known than his colleagues, whether he is the only surgeon in the country, whether he is rich and not obliged to practise, whether he has enough cases to fill up his time, and whether he is on the point of undertaking most important cases. On the second point, viz, the condition of the patient. He either knows or he does not know him, if he knows he is aware whether he is rich or poor, whether, for example, he is the nephew of a bishop or of an abbé. But if he does not know him he ought to make careful inquiries, or rather he ought to get his assistants to make them, because sometimes, indeed often, it happens that the rich come to the leech dressed like paupers.... As to the third point, the surgeon should think of the disease, whether it is serious, if it is difficult to cure, etc, etc. When the surgeon has considered all the points under

* Early English Text Society. Original Series 139. Published by Kegan Paul & Co, and by H Frowde, Oxford University Press, 1910.

these three headings he ought to charge the patient boldly a very large fee, though he may moderate it according to circumstances. To the rich man he should say "the fee a surgeon ought to receive is a hundred pounds for this operation," and if the patient is staggered by the sum he would continue, "but I did not say I was going to charge you this amount," and thus little by little he lowers his fee. But he should always have a minimum for each operation and never go below it. In such cases it is more graceful for him to say—I am ready to do this operation, as you and your friends wish, but I would rather do it for nothing to please you than for so small a fee." I repeat the surgeon ought to charge the rich as much as possible provided he does all he can to cure the poor. You then, surgeons, if you operate conscientiously upon the rich for a sufficient fee and upon the poor for charity, you ought not to fear the ravages of fire, rain or wind, you need not take oilders or go on pilgrimages because by your science you can save your souls alive, live without poverty and die in your houses. For this reason surgeons enjoy such immunities and are free from all personal service and from all common burdens, such as repair of walls, moats and roads, from the night watch in towns and from all kinds of things. The surgeons are classed as Surgeon-Major and as Surgeons of the Palace or Examiners, who are generally called Archiatries by the common people."

There is much of wisdom and practical commonsense in these words of an old early fourteenth century Master-Surgeon

THE ADVANCE OF SURGERY IN INDIA

At a period in the history of the Indian Medical Service where there exists a tendency to forget all that Service has done for India, and especially for the advance of medical education in India and when the tendency is to depreciate the splendid civil medical side of that service, it is well to recall to the memories of our readers the state of things that existed in earlier days. When we think of the state of medical knowledge in India before the advent of the medical officers of the Honourable Company, and when we look at the magnificent colleges and medical schools which now exist in all the capital towns of India, surely it is only fair not to forget by whom this great and

enduring work has been done. And by whom? by the medical officers of the Indian Medical Service in civil employ.

Nor has this beneficent work been confined to the great cities and capitals of India. While the hospitals, colleges and laboratories of our Presidency Towns compare favourably with those of any city in Europe, we must not forget the less known hospitals and dispensaries in every *mofussil* city of importance. Even to those whose memory of things Indian only dates back 20 or 25 years, the change has been remarkable. Twenty years ago splendid surgery was done in small ill-constructed hospitals and in the back verandahs thereof. Now in nearly every town we see a fine hospital, well equipped with operating rooms far better than any known in Europe 20 years ago. To whom has this been due? Mainly to the Civil Surgeons of India, who have been the backbone of the Indian Medical Service. That much is due to the liberality of Indian Princes and gentlemen we all know and gladly acknowledge, but it was the enthusiasm and energy of that splendid body of medical men, the Civil Surgeons of India that collected the money and guided the hand of liberality to its full accomplishment.

The present special surgical number gives a picture of present day surgery in India, but after all only represents one side of the surgical activities of the Civil Surgeons and teachers in our schools and colleges. We have in previous special numbers dealt with the two great surgical operations which have made the surgery of India famous and recognised all over the civilised world. The work of Keegan, P. J. Freyer, Keith and many others have made the operation of litholapaxy peculiarly an Indian one. In no other country in the world has the surgeon such an opportunity for performing this operation and countless are the sufferers whose sufferings have been relieved by the skill of the surgeons, who think nothing of 3 or 4 stone operations before breakfast. In the other operation which Indian Medical Service officers have made famous—cataract, how enormous has been the relief afforded and how grateful the people should be to the numerous surgeons who in countless cases have restored the great boon of sight to the blind. At the present day the work of a single surgeon in the Punjab has made his station a Mecca of the ophthalmologist, and in every district in India there are skilled operators for cataract

whose work in one year in this operation alone is greater than that of any of the most famous ophthalmologists of Europe. No wonder such opportunities attracted the best men from the schools of England, Ireland and Scotland. Here was a career open to the talents. It will be a disastrous day for the people of India when the Indian Medical Service no longer attracts such men. Let us hope such a day is far off.

In July 1908 we drew attention to the great advance of Surgery in India, making use of an article by Colonel Kenneth Macleod, I.M.S.

(retired), who in his day was a surgeon renowned far beyond the limits of his Province, Bengal.

The progress of surgery there sketched was divided into three periods (1) the pre-antiseptic period before the year 1870, (2) the transition period 1871 to 1885 when antiseptic methods were being introduced and new generations of indigenous surgeons were being taught the great truths of Lister's methods, and (3) the aseptic period from 1886 onwards.

We may again quote these statistics —

TABLE I
Pre-antiseptic Era

AMPUTATIONS			Hip joint and thigh			Knee joint and leg			Shoulder joint and arm			Elbow joint and forearm			TOTAL		
			No	Deaths	Percentage	No	Deaths	Percentage	No	Deaths	Percentage	No	Deaths	Percentage	No	Deaths	Percentage
For injury	{ Primary Secondary		2	2	100	35	22	62	7	4	57	8	4	50	52	32	61
For disease			16	14	87	7	6	85	9	6	66	3	2	66	35	28	80
			19	17	89	19	9	47	9	4	44	4	2	50	51	32	62
TOTALS			37	33	89	61	37	60	25	14	56	15	8	53	138	92	66.6

TABLE II
Transition Period

	Amputations for injury						Amputations for disease			TOTAL		
	Primary			Secondary								
	No	Deaths	Per centage	No	Deaths	Per centage	No	Deaths	Per centage	No	Deaths	Per centage
Calcutta hospitals	26	21	80	25	21	84	54	26	76	85	68	80
Small hospitals in Bengal	46	24	52	59	27	45	68	22	32	173	73	42

TABLE III
1879-1883
Amputations

			Hip joint and thigh			Knee joint and leg			Shoulder joint and arm			Elbow joint and forearm			TOTAL		
			No	Deaths	Percentage	No	Deaths	Percentage	No	Deaths	Percentage	No	Deaths	Percentage	No	Deaths	Percentage
For injury	{ Primary Secondary		1	1	100	3	1	33	4	1	25	3			11	3	27
For disease			5	4	60	3	2	22	1	1	20	1	1	100	14	5	35
			8	4	50	9	2	22	5	1	25	1			22	7	31
TOTAL			14	8	57	15	3	20	13	3	23	5	1	20	47	15	31
1886 to 1890																	
For injury	{ Primary Secondary		1		5	1		20	6		9				21	1	4
For disease			7	1	14	30	1	3	8	2	25	2			14	4	28
			8	1	12	39	4	10	14	2	11	11			41	2	4
TOTAL			8	1	12	39	4	10	18	2	11	11			76	7	9

Colonel Macleod gave a final table showing the results in India in 1906 —

Hospital of	All amputations excluding hands, feet and penis			Thigh amputations		
	No	Deaths	Percentage	No	Deaths	Percentage
Calcutta	116	21	18	30	8	26
Bengal	113	24	16	30	7	23
U P	260	27	10	49	11	22
Punjab	263	20	7	45	9	20
Bombay Presy	304	25	8	49	7	14
Madras "	259	35	13	27	6	22
	1,345	152	10.5	230	48	20

These figures speak for themselves, the papers we publish in this issue show the nature of the surgical operation performed nowadays and the success with which they are done

Current Topics.

OUR SPECIAL SURGICAL NUMBER

WE have much pleasure in presenting to our readers a special surgical number which we are glad to say is representative of all the provinces of India

In these days when there is an uncomfortable feeling abroad that the Civil side of the Indian Medical Service has seen its best days, it is well to call attention to the great surgical work done by the I M S Officers in Civil employ. That it is the fine career offered by Civil employ in India and the splendid opportunities for good surgical work that has in the past attracted the best men of the schools into the ranks of the I M S can hardly be gainsaid. The work, a small specimen of which we here exhibit, has been done by the Civil Surgeons and the School and College teachers who form the backbone of the Service. These are the men from whom the present and past generations of Indian practitioners have received their training. It will be a bad day for surgical, medical and sanitary progress in India when the Civil side of the Indian Medical Service no longer offers a career that to the best men. That that day is still far distant we still confidently believe.

Owing to the superabundance of material sent in response to our requests, we are obliged not only to enlarge the present issue of the *Gazette*, but to hold over other good articles for another issue. In this special issue we have purposely excluded cataract and stone, two operations with which the Surgeon in India is specially conversant, but with which we have already dealt with in previous special numbers and may do so again.

EPIDEMIC POLIOMYELITIS

A QUESTION was recently referred to us as to the existence of the disease known as anterior poliomyelitis or spinal infantile paralysis in India. We replied in the negative to the effect that we have never seen or heard of a case, and that we were certain that this disease had not existed in an epidemic form in any part of India.

It is only 50 years ago since the disease was first described by Heine, but since then the disease has become widespread and culminated in the "ghastly epidemic" as it has been called, which occurred in New York in 1907. A useful article on the epidemiology of this disease appeared in the *Journal American Medical Association* (June 11th, 1910) by Dr J Collins, Physician to the Neurological Institute of New York. Dr Collins traced the numerous epidemics which have presided during the past 25 years. In Norway in the years 1867—1895, in Vermont in 1894, in Queensland in 1904, in Norway again in 1905, in Vienna in 1908, in Wisconsin in 1909, in Westphalia in 1909, in the great epidemic of New York in 1907 when 2,500 cases were collected and recorded.

There is no evidence of this disease having been known before 1843, it is regarded, therefore, as a new disease.

In the epidemicity of poliomyelitis the most remarkable feature is its seasonal occurrences. It occurs invariably in the summer months, and the advent of cold weather terminates an outbreak in every instance. The disease is moreover communicable and its spread can be traced by the passage of individuals from town to town and cases too of indirect contact have been established. The incubation period is from 4 to 14 days. The mortality rate varies in the epidemics, in some it is as low as 5 per cent of cases, in others it has been 20 per cent, in one Swedish epidemic it was as high as 46 per cent.

Unhygienic surroundings cannot be shown to have any special influence. One attack confers immunity usually, but recurrences in the same child are not unknown. The portal of infection is the nasopharynx. In fact in this point the disease resembles cerebro-spinal fever and the methods of prophylaxis are the same.

SURGERY IN A MISSION HOSPITAL

OUR readers are well acquainted with Dr Wanless' work, and we quote the following from the report of the Hospital at Muij —

Medical Cases — The most conspicuous feature of the medical side of the hospital work has been the considerable number of cases of cirrhosis of the liver (42 cases) treated in the wards. Practically all of these patients gave an antecedent history of fever varying from a few days to several weeks with a gradual onset of cirrhotic symptoms. Practically all of them sought relief in a late stage of the disease and unfortunately only temporary relief was all that

could be accomplished in their treatment. Only a few of the very advanced cases sought operative relief and of those selected for epiploexy the result on the whole was discouraging (see surgical notes). Simple tapping in several of the cases seemed to hasten the inevitable end. Tuberculous diseases too showed a considerable increase. From our experience in both dispensary and hospital practice we are convinced of the great increase of the great white plague in this country. Heart cases were unusually prevalent. We admitted 23 cases of enlarged spleen from a much larger number seen in the dispensary, practically all were of malarial origin. We gave atoxyl a faithful trial and found it without any effect whatever. Mercury, arsenic, quinine, iron and magnesia have been of most service when used singly or in combination. Turpentine injections to produce leukocytosis have been of considerable service in these cases where the spleen was of moderate size and not hard, but on the whole, no one remedy or combination of remedies has been entirely satisfactory in these large hard spleens.

Surgical Cases—Successful surgery has one drawback, and that is the large number of incurables that turn up on the train of successful operations. This is especially true of abdominal surgery.

Abdominal—In 1908 we persistently turned down most of the advanced cases of malignant disease. In 1909 we were tempted again to operate on a considerable number of bad cases with the result of a mortality of 32 in 153 operations as compared with 7 in 136 operations of the previous year. In looking over the mortality record in the abdominal cases for 1909, we find that 5 were late cases of intestinal obstruction. A case of acute intestinal obstruction with rapid, thready pulse, cold extremities, scanty or suppressed urine, and dry coated tongue is a poor surgical proposition, no matter what condition may be found within the abdomen, the mortality is likely to be close up to 100 per cent, four out of our five cases operated on died. Six more out of ten operated cases (epiploexy) for cirrhosis of the liver died within three days to several weeks after the operation. Three deaths followed radical operations for cancer (1 stomach, 2 bowel), and three in cases of simple exploration for the same disease—one from exhaustion and two from pneumonia. Death also followed (at an interval of several days or weeks) explorations for cancer of the uterus in three cases. Resection of the tuberculoma of the bowel resulted fatally in three cases, one after three months from tuberculous meningitis, one from septic peritonitis, and one from exhaustion. In another case gangrene of the bowel from thrombosis followed a resection of about six feet of bowel in a case of large tumour (at the time thought to be malignant but on section proved to be a fibroma) involving mesentery and bowel. A sudden and unexpected death from angina

pectoris occurred in a case of cholecystostomy. The remaining nine deaths occurred in gastric cases (out of 51 operations), two from pneumonia, one from acute dementia, one from asthenia—this patient weighed less than 60 lbs., one from an overdose of opium, one from suppression of urine, one from miasma—an old case of secondary operation, one in perforated ulcer in which an assistant removed a diam contrary to orders, one on the twelfth day after operation in the writer's absence from the station. This last mentioned patient was doing well, feeling good and is said to have eaten a good lot of raw pea nuts. His symptoms were those of acute intestinal obstruction, post-mortem was not permitted.

A factor contributing to the mortality of abdominal operations among Indians of the poorer classes, especially in malignant neoplasms, is the usually bad nutrition and consequent diminished resistance of the Indian patient as compared with European patients who have a wider range of easily digested food to support them in wasting diseases. The lack of intelligent co-operation on the part of the patient and his friends is also often a serious factor contributing to a higher mortality. On the brighter side, 38 patients upon whom gastroenterostomies was done were discharged "cured" and 1 "relieved." All of these operations were for chronic ulcer, 11 ulcers were located in the stomach, 11 were in the duodenum, and 19 were in the pyloric region producing stenosis. Enterocanastomosis was done with relief in three cases of tuberculoma. There were 11 operations for appendicitis, all recovering. Appendicostomy was done in one case of intractable membranous colitis with very gratifying result. The remaining cases discharged "cured" or "relieved" were, intestinal adhesions, 3, syphilis of the liver, 1, tuberculous peritonitis, 1, atrophic gastritis, 1, subphrenic abscess, 1, hæmorrhagic peritonitis, 1, chronic intestinal obstruction by mesenteric band, 1, tuberculous omentum with hernia, 1, cholecystostomy, 4, liver abscess, 1, splenectomy for large movable spleen, 1, penetrating wound of abdomen, 1, epiploexy for cirrhosis, 4.

Amputation—4 minor and 9 major. In the latter two deaths resulted in cases of acute gangrene and one as a crush of the arm with internal injuries.

Bones—42 operations without mortality, 29 of which were for necrosis.

Deformities—31 operations, 9 for congenital and 22 for acquired deformities, 20 "cured", 11 "improved."

Ear—5 operations, 2 of which were for mastoid abscess. Considering the large number of patients with otorrhea one sees in dispensary practice it is remarkable so few go on to mastoid abscess. The warm climate probably accounts for this.

Eye and Appendages—Ophthalmic surgery now forms a large part of the surgical work of this hospital. Three operating days weekly are given almost exclusively to operations upon the eye. The record for the year is a total of 1,714 eye operations classified as below:

There was an increase over the previous year's eye operations of 450. There were 694 cataract extractions, 597 of them were uncomplicated senile cataracts in which Smith's intracapsular operation was done in about 90 per cent of the cases. The record for the entire group shows 92.33 per cent good vision, 6.34 fair vision and 1.33 failures. The majority of the patients left the hospital within ten days of operation, better result would undoubtedly have been recorded had the vision been taken at a later date.

We are doing Smith's operation in all uncomplicated cataracts except those which are known to have very thin capsules. In these we still employ the capsulotomy irrigation operation. This far we are pleased with the result of Smith's operation but reserve final judgment on it until we have had further experience and time to carefully review all records of the cases.

<i>Lids</i> —For entropion, trichiasis, etc	95
<i>Conjunctiva</i> —For trichoma, pterigium, etc	40
<i>Lachrymal apparatus</i> —For dacryocystitis, stricture, etc	19
<i>Cornea</i> —Ulcers	74
Pannus	3
Foreign bodies	5
Hypopyon	4
Leukoma and opacities	547
Staphylococci	27
<i>Iris</i> —Synechia, occlusion, etc	36
<i>Globe</i> —Glaucoma, ophthalmitis, etc	121
<i>Muscles</i> —Strabismus, etc	2
<i>Lens</i> —Senile cataract	597
Soft	23
Juvenile	3
Lamellar	1
Congenital	4
Complicated, Senile	11
Membranous	33
Traumatic	18
Inflammatory	20
Lenticular opacity	4

TOTAL 1,714

Genito-Urinary—Stone Operations—25 lateral lithotomies—1 death, perineal litholapaxies 7 operations, all recovered, 6 suprapubic, all recovered, total 63 operations, 3 deaths.

Kidney—2 nephropexes, 1 nephrectomy, all recovered.

Prostate—5 perineal and 2 suprapubic operations, all recovered. Miscellaneous operations for stricture, phimosis, hydrocele, scrotal tumors, etc, 74, no mortality. Total, 147 operations, 4 deaths.

Gynecological—94 operations. Under this head there were 44 abdominal sections with three deaths, all cases of cancer of the uterus (*vide supra*). The remaining successful list consists of 15 hysterectomies, 1 myomectomy, 9 ovariectomies, and 16 other operations requiring

laparotomy. The remainder were operations of a minor character, such as curettage, perineorrhaphy, vesico-vaginal fistula, etc, death from septicemia resulted in a case of curettage for endometritis, the atrium of infection not discovered.

Hernia—36 operations for inguinal hernia, in which the Bassini operation was done successfully in 35, and 1 ventral hernia in which the Mayo method was employed. One case, a large fat patient with a very large scrotal hernia which gave rise to a good deal of distress, died of fatty heart on the 4th day after operation.

Joints—38 operations, 13 cured, 24 relieved, 1 unimproved, 10 of these were excisions of large joints.

Mouth, Nose and Throat—27 operations, mostly of a minor description. There were 8 rhinoplasties for cut-off nose.

Rectal—64 operations without mortality, 35 of which were for hæmorrhoids, clamp and cautery operation, and 23 for fistula in ano. There was one excision of rectum for cancer.

Tumors—114 operations with 4 deaths. The list includes 109 solid and 10 cystic growths and neoplasms, with which for the sake of convenience are included 26 cases of enlarged glands. 19 of the solid growths were carcinomata and ten were sarcomata, add to these the visceral cancers reported under "abdominal," "genito urinary" and "gynecological," and we have to report in all 35 carcinomata and 11 sarcomata treated surgically during the year. There were 75 benign growths. Two of the deaths in the malignant group followed excision of the upper jaw and two ligation of the common carotid artery for inoperable tumors.

Tappings for fluid Collections—Ulcers, wounds, etc, call for no special mention.

The total number of operations shows an increase of 518 over the previous year.

ANNUAL REPORTS

THE PUNJAB HOSPITALS REPORT

THIS report on the hospitals of the Punjab for 1909 was submitted by Colonel T. E. L. Bate, I.M.S., just before he retired.

Seventeen new dispensaries were opened. The following note has more human interest than is generally found in Secretariat resolutions on departmental reports—

"Surgical work continues to expand, and the total number of operations performed 220,243, was 20,833 larger than in 1908. His Honour again acknowledges the excellent work done by Major H. Smith and also by Hospital Assistant Mathura Das. In connection with the excellent work done by this latter officer and other Hospital Assistants, the Lieutenant Governor desires again to endorse the remarks of the Inspector General of Civil Hospitals as to the necessity of providing for selected men of this class a better career than that now open to them. It is somewhat terrible to find that an officer whose surgical record is the second in the whole province should not be able to use in Government service to salary exceeding Rs 70. The high percentage of success obtained in the very large number of cataract cases is most commendable."

Colonel Bate wrote as follows—

Last year 220,243 surgical operations were performed against 199,410 in 1908. The number classified as selected was 23,629 as compared with 19,055 in the preceding year. The former

number includes 10,663 for extraction of the lens, 2,248 for stone in the bladder, 266 for hernia, 103 for liver abscess, 74 abdominal sections, 26 ovariotomies, 17 appendicectomies, 16 hysterectomies, and 16 Cæsarian sections. Here, again it is quality not quantity that is the important *desideratum*, and it is, therefore, satisfactory to record that good vision resulted after the operation for cataract in 93.53 per cent of cases, the percentage of deaths after appendicectomy was nil, stone in the bladder 3.6, ovariotomy 15.39 and hysterectomy 12.5.

As regards cataract operations, the Jullundur Civil Hospital stands first with 2,310, the Mogra dispensary coming next with 1,762. Multan, as usual, records the highest number of operations for stone in the bladder, closely followed by Jullundur, Lyallpur and Lahore. It may be noted that litholapaxy was performed in 2,080 cases with a mortality of 3.17 per cent and lithotomy in 168 cases with a mortality of 8.93 per cent. Of the twenty-six ovariotomies, thirteen were done in the Memorial Mission Hospital, Ludhiana, of the sixteen hysterectomies, nine were performed at the same institution with one death.

Amongst operators the largest amount of work was done by Major H. Smith, who performed 2,509 selected operations, including 2,235 for cataract and 61 for stone in the bladder. Special mention must be again made of the excellent work of Hospital Assistant Mathura Das at Mogra. He performed 2,050 selected operations, including 1,761 for cataract.

Other officers who did a large amount of operative surgery were Major E. V. Hugo, Lieutenant Colonel D. T. Lane, Military Assistant Surgeon W. C. L. Deeks and Lal Kharz in Chand. Amongst the Assistant Surgeons Lal Hari Chand, Lal Brij Nath, Mr. B. C. Ghosh, Mr. H. O. Ghosh, Lal Hari Narayan, and Lal Suram distinguished themselves in the same field while the work of Hospital Assistants Balmokand, Naryab Shah and Sant Ram is also deserving of mention.

No record of the year's operations would be complete without mentioning the excellent work done in the various female hospitals. And in this connection it gives me great pleasure to bring to special notice the splendid results obtained in abdominal surgery by Dr. Edith Brown of the Memorial Mission Hospital, Ludhiana.

We must supplement these remarks by some figures taken from statement G. There were over 1,900 operations on tumours, over 900 on cysts, over 55,000 abscesses, 2,631 foreign bodies removed, 25 ligation of arteries, 27 operation on veins, 24 on nerves, about 5,700 on bones, 1,245 reduced dislocations, over 500 amputations, 16 trephannings, 72 rhinoplastic operations, 54 hare lips, thousands of eye operations including the splendid figure of 10,663 operation for cataract, 396 nasal polypi removed, 71 abdominal sections (a rather vague heading), 3 gastrotomies, 8 suturing of intestines, enterectomies 5, appendic operations in all only 25, hernia strangulated 88, for radical cure 176, abscess of liver 103 (13 died, 11 'discharged otherwise', 11 'relieved', 63 cured), nephrolithotomy 12, anal fistula 220, for piles 352, stone in bladder 2,320 including supra pubic or vaginal cystotomy 62, lithotomy 168, lithotripsy 10 and litholapaxy 2,050 (with only 66 deaths), showing the overwhelming preference for this method of removing stone. We need not mention innumerable other operations, but may conclude by calling attention to this fine record.

THE HOSPITALS REPORT OF THE UNITED PROVINCES, 1909

The year closed with 146 working hospitals and dispensaries. The rapidly increasing popularity of these institutions is shown by the following figures—

1906 total attendances	39,62,653
1907 " "	39,39,603
1908 " "	46,79,141
1909 " "	49,36,599

And this remarkable increase is not due merely to the great malaria epidemic of 1908. We agree with Colonel Manifold, I.M.S., the Inspector General, that this must mainly be attributed to the increasing popularity of these institutions.

The following note on the malarial outbreak of 1908-1909 is worth extracting in full—

"Although the malaria outbreak of 1908 was the most severe that the province experienced since 1879, the number treated (13,69,583) being nearly half that of the total treated during the previous five years, the number treated during 1909 rose to 14,92,487. Gonda and Lucknow registered an attendance of 1,36,942 and 1,10,032 respectively, four districts registered over 50,000, five over 40,000, eight over 30,000, twelve over 20,000 and eleven over 10,000. It is however, satisfactory to find that whereas 11,41,679 deaths were registered during September to December 1908 the number fell to 5,67,391 during the corresponding period of 1909. This decreased mortality, notwithstanding the increased attendance of 1,30,000, is very gratifying and is, in my opinion, the highest tribute to the success of the efforts made by

Government to combat the epidemic by the issue of increased supplies of quinine through dispensaries and other agencies. The total quantity of quinine distributed free at Government expense was 1,905 lbs costing Rs. 16,737, while 525 lbs costing Rs. 4,797 were distributed at the cost of district boards. Quinine was also distributed as a prophylactic in juls and to the police force, and 500 lbs were supplied in addition to the usual supply to the dispensaries attached to the Oudh and Rohilkhand Railway. The extraordinary fall in the malarial death rate whilst the disease was raging more extensively than in former years points conclusively to the fact that the people appreciate the benefits of quinine, and I have no doubt that with the extended sale and when necessary, distribution of quinine, and the benefit which must result from the travelling dispensaries which Government has recently sanctioned the mortality from malaria will further rapidly diminish. I feel sure that the increased attendance at dispensaries will be maintained in future years. The public are now fully alive to the value of quinine and know that when ill with fever they can readily obtain it at dispensaries. They will no longer be content with the older remedies they have heretofore ineffectively resorted to, but will insist on getting quinine."

The following note on infantile mortality is also worth reproducing—

"The inquiry showed that infantile mortality is greatly due to tetanus or other septic disease at child birth. The prevalence of tetanus, the most prolific source of infantile mortality in this country, is entirely due to the prejudices which cause the untrained attendants employed at confinements to treat the cut surface of the umbilical cord with all sorts of deleterious matter often mixed with mould containing the tetanus germ. Infection by the specific bacillus of tetanus is thus brought about with appalling frequency which in nearly every case proves fatal. Infants within a few days of birth die of so called convulsions which, however, are only a manifestation of this disease."

The following are the figures for surgical operations for which the U.P. hospitals have long been famous—

"The number of surgical operations performed during the year was 1,88,045 against 1,91,180 in 1908. The number of patients operated on was 1,80,938 as compared with 1,85,757 in the previous year. The cures amounted to 1,66,137 and the number relieved and discharged otherwise to 12,110 and 2,170 against 1,70,860, 12,441 and 2,440 in 1908."

The list of Medical Officers who performed the greatest number of operations headed by Lieutenant Colonel Baker (601) and Major Turner (550)."

In a special surgical number of the *Indian Medical Gazette* these figures must be further detailed.

Turning for these details to Statement G we find as follows. We can only quote a few—

Operations on tumours	1,161
" " cysts	394
Excision of abscesses (over)	62,000
Operations on ulcers	144
" " aneurism	3
" " on bones (nearly)	6,000
Reduction of dislocated joints (over)	1,300
Amputations	474
Rhinoplasty	123
Hare lip	33
Dental operations (over)	80,000
Eye operations, pterygium	115
" " lacrimal obstruction	144
" " indecency	291
" " artificial pupil	431
" " tattooing corner	30
" " cataract extraction	5,465
Ear operations (over)	3,100
" " tracheotomy	6
Excision of the breast	41
Paracentesis of abdomen	1,665
Abdominal sections	98
Gastro intestinal operations	10
Hernia	190
Abscess of liver	77
Operation on the kidney	5
Fistula in ano	287
Hæmorrhoids—by injection	1
" " " ligature	78
" " " excision	54
" " " cautery	8
Stone—supra pubic	6
" " lateral perineal	56
" " median perineal	223
" " vaginal	6
Lithotomy and Litholapaxy	700
Urethral calculi	171
Hydrocele (excluding trapping)	1,490
Ovariotomies	23
Obstetric operations	871

This is a fine record

BENGAL HOSPITALS

The report for 1909 on the medical institutions of Bengal was submitted by Lieut Colonel F J Drury, I.M.S., who acted during the interregnum between Colonel Macrae's departure and the arrival of Colonel Harris.

The report is an annual one and is intended to be only a note on the annual statistical tables. There are 19 hospitals in Calcutta, all are flourishing. The report states that "hospital accommodation in Calcutta was generally sufficient."

The epidemic outbreak of Small pox led to the Campbell Hospital having no less than 678 cases to treat. There were also 60 cases of cerebrospinal fever. There were 73 cases (6 deaths) returned as beri beri and 163 (and 10 deaths) as Epidemic dropsy. To show the admittedly great prevalence of Tuberculosis in Bengal it may be mentioned that no less than 2,378 cases were treated in the Calcutta hospitals.

The surgical operation in Calcutta are recorded as follows — "The total number of surgical operations increased from 33,368 in 1908 to 34,347 in 1909. The Mayo Hospital had an increase of 743, but the Chandney Hospital showed a large falling off, viz., 423 which is attributed to the diminished attendance noticed above. At the Campbell Hospital there was an increase of 689. The Medical College Hospital showed an increase of 551."

The Medical Officers who performed a large number of important operations in 1909 were Lieutenant Colonel F P Maynard, I.M.S., 954, Lieutenant Colonel C R M Green, I.M.S., 576, Captain H B Steen, I.M.S., 361, Captain F P Connor, I.M.S., 235, Major C R Stevens, I.M.S., 240, Major F O'Knealy, I.M.S., 186, Major R Bird C.I.E., I.M.S., 158, and Lady Doctor Miss R N Cohen, 118, which included a large number of abdominal sections."

The weak point in all the Calcutta hospitals in the nursing and want of money is the chief trouble, but the new scheme just announced will, it is expected, be a great advance. As regards hospitals and dispensaries in the mofussil four pages though more than the allotted space, are far too short to adequately describe the work done in the 582 hospitals and dispensaries under Government in Bengal. One would like more than a brief reference to the scheme of floating dispensaries and of itinerant medical officers, which has been started and apparently with good success.

We are glad to see that the experiment of deputing 19 sub assistant surgeons to distribute medical aid in malarious tracts has been a success and that they treated 71,800 cases. The increase in the number of *Erythrasma* treated is curious. The following statement is of interest.

"In surgical work there was also an increase in the number of operations performed in dispensaries the figures being 178,082 against 171,628 in 1908. The death rate amongst patients operated on in hospital in Classes I, III and IV was 22 per cent against 14 in 1908. The total number of operations performed in Calcutta and District Hospitals was 212,429 in 1909 as compared with 199,458 in the United Provinces of Agra and Oudh for the same year. There were 3103 extractions of the lens against 3,268 in 1908, vision being restored in 91.45 and 93.67 per cent, respectively. Ovariotomies rose from 8 in 1908 to 23 in 1909, scrotoal tumours were removed in 233 cases against 168 in 1908, lithotomies numbered 91 against 83, lithotriaxies totalled 114 against 104 in 1908."

The following officers performed a large number of important surgical operations —

Captain E O Thurston, I.M.S. (Gaya), 531, Major B R Chatterton, I.M.S. (Muzaffarpore), 313, Major B C Oldham, I.M.S. (Patna), 249, Major R P Wilson, I.M.S. (Burdwan and Cuttack), 201, Assistant Surgeon Satish Chandra Banerjee (Muzaffarpore) performed 375. Assistant Surgeon Tripura Chaitan Guha (Bethurbah), 270, Assistant Surgeon M. K. K. Chatterjee (Arrah), 259 and Assistant Surgeon Surendra Nath Ghosh (Madhubani), 258.

Correspondence

THE INDIAN SUBORDINATE MEDICAL DEPARTMENT

To the Editor of the "INDIAN MEDICAL GAZETTE"

SIR — After carefully reading the highly interesting and capable letter of Military Assistant Surgeon Foy contained in your July issue, I feel impelled to request you will be so good as to favour me with the publication of this letter in your next

Although Assistant Surgeon Foy has given an able exposition of the unhealthy and stigmatising circumstances which envelop our department, yet I think he has not been quite complete in his remarks, and therefore I trust you will be so courteous as to give me an opportunity of expressing my views in connection therewith.

The general tenor of his letter must necessarily appeal to all level headed and aspiring members of our department, although it is to be wondered whether the Government of India will adopt the intelligent measures therein suggested on account of its apparent non feasibility to a wide degree. Agreeing therefore with the first portion of his letter, I have no further remarks to offer in reference thereto except that I would like to authentically state that great difficulty is experienced by those members of the department, who, being desirous of working for English qualifications are not very liberally and invariably given certificates of their courses of lectures and clinical study by the issuing authorities of the colleges in which they may happen to have been respectively educated. It appears to me that in addition to this negative harm in many cases there is, though intimately connected, yet a totally different positive one in that innumerable and often insurmountable difficulties are made for these aspiring and intending candidates. Until therefore this evil of a two fold nature could be permanently eradicated and the Government moved to provide means which would simplify our trouble, it is inevitable that our department must perpetually remain stagnant, and that we will never enjoy the sympathy and good will of our confieries in the civil branch, who, of course, being university graduates are puffed up in their own contemptible pride. What I would wish to emphasise rather is the want of mutual sympathy between the R.A.M.C. and I.S.M.D., the former refusing to accept the latter as qualified, in many instances even refusing to credit that the Military Assistant Surgeon goes through a course of lectures, &c., at a college in India for a period of four years. In fact it is only too common a thing to have an R.A.M.C. officer look down upon the Assistant Surgeon with a painfully sarcastic smile when he is reminded of this fact. With the continuance of this very hostile circumstance how then is it possible for him to improve himself professionally when he is given no chance or scope to do so? Truly it is evident to me that the Assistant Surgeon in a Military Hospital is expected to be able to meet with any emergency of the most intricate type whenever occasion may demand but is conveniently cast aside under more favourable conditions. This want of sympathy and co operation I am positive does not exist between the I.M.S. officer and those few of us who find their way into the civil.

I would ask you, Sir, to pardon this necessary digression, but it seems a fitting opportunity to make a remark or two in reference to the proposed Medical Registration for India as our position and security appears very threatened indeed. True it is that, according to the requirements of the British Medical Council for purpose of universal practice in the British Dominions we are "non qualified," but yet, do we not hold a Diploma which authoritatively licenses us to practise in medicine, midwifery and surgery?

Of course, there is a difference between the Civil and Military Assistant Surgeon but this after all is one dependent more on preliminary educational attainments (often only one step higher) rather than on any intrinsic professional superiority. Are not available certificates of honour and other distinctions in the various subjects shared equally or at least plausibly and proportionately so by the military medical pupil as by his prouder civil rival? It must be admitted that the collegiate course differs in that the Military Assistant Surgeon receives no lectures in organic chemistry and biology, but as for both the theoretical and clinical sides of his work in all other subjects, to my knowledge, there is no material differences whatever which may be calculated to turn him out a smarter or more able practitioner.

The feeling of uneasiness that has overtaken us as a whole could hardly be exaggerated in view of the recent agitation set up in Bombay under the direction of Sir Balachandra Krishna, and it is hoped therefore that the paternal and liberal Government we serve will now take every step to reinforce our position and render it more stable, at the same time, awaking to their duty in the interests of their subjects country at large to hastily open rather than close the portals of science to all possessed of both ambition and enterprise irrespective of caste, colour, or creed, for does not the policy of progress improve and add to the internal economy of every country and race?

Trusting you will excuse me for so greedily occupying so much of your valuable space

STN HOSPITAL, ADEEN,
30th July 1910

I am, Sir,
Yours faithfully,
B J BOUCHE, I.S.M.D.,
Military Asst Surgeon

THE MILITARY MEDICAL DEPARTMENT

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR—From a letter recently addressed by the Government of India, Home Department to the Government of Bengal, Municipal Department, it will be seen that it is in contemplation to style the Service of the 'Civil Assistant Surgeon' as the 'Provincial Medical Service' and their designation be changed to 'Provincial Medical Officer'. If this change and re-baptism comes into force it will, I am sure, be very gratifying and much appreciated by the members of that service, and it will to a great measure raise their social status.

It will probably not be out of place to point out that however desirable it is that this branch of the service should have a suitable name, and the one suggested is as suitable as it can be, yet unless some alteration is made in the styling of a sister service, namely, that of the Military Assistant Surgeons, some little difficulties might sometimes be created.

It sometimes happens that a senior Military Assistant Surgeon of Indian Subordinate Medical Department is in charge of a district and a Civil Assistant Surgeon may be serving in some capacity under him, the situation would be the least but anomalous to have an officer of the Provincial Medical Service serving under another who is 'dubbed' 'Subordinate'.

This would appear a very favourable opportunity if the authorities would be graciously pleased to consider the Military Assistant Surgeons as well. The appellation "Subordinate" serves no purpose. The Warrant and Honorary Commissioned Officers of no regiment in the British forces are branded as 'Subordinate such and such Regiment' nor are the Warrant and Honorary Commissioned Officers of any of the departments in military, such as Supply and Transport Corps, the Military Works, or the Royal Engineers branded 'Subordinate' whereas the Warrant and Honorary Commissioned Officers (i.e., the Military Assistant Surgeons) of the Medical Department are, and their position and status greatly affected both in military and civil employ in their relation with other subordinate officers.

In this respect may I suggest that if the Military Assistant Surgeons' service cannot be incorporated and made part of the Indian Medical Service forming what it actually is, the Warrant and Commissioned branch of it, the department may be styled the 'Indian Medical Department' or the 'Military Medical Service'.

Yours faithfully,

The 30th August 1910

CIVIL SURGEON

THE CONTENTS OF A HERNIA

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR—While it is not unusual to find the cremum and vermiform appendix forming the contents of a right inguinal hernia, especially in male children, I was struck by finding these organs forming the contents of a left inguinal hernia while performing a radical cure some months ago in the case of a young boy. As this is the only instance of the condition which I have come across I take the opportunity of your publishing a special number on operative surgery to record it and to invite testimony from the experience of other operators as to whether they have met with similar cases.

BOMBAY

Yours truly,

W. T. JENNINGS, M.D., D.F.H.,
Lieut Colonel, I.M.S.

'ROGERS SEVEN DAY FEVER'

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—It was with great interest that I read in your last issue Colonel Wimberley's article on the outbreak of a Dengue like fever amongst the 15th Sikhs.

It struck me that if there is a differential diagnosis at all between 'Breakbone Dengue' and the Seven Day Fever described by Major Leonard Rogers—then these interesting cases must fall under the latter heading—and this in spite of the fact that the fever of 50 per cent of Colonel Wimberley's cases lasted only three or four days, and also of the fact that Nowshera is an inland station.

For on the one hand, it is quite conceivable that some abortive or mild cases of Seven Day Fever may only last for three, four or five days and on the other hand as Colonel Wimberley says "it is difficult to calculate the exact duration of the pyrexial attack (i.e. in this Nowshera outbreak) as some men did not report sick at once and were indefinite as to how long they had been ill before coming to hospital."

Again the epidemiology of Seven Day Fever is too little known at present to limit its occurrence to seaport towns.

The connection between Pappatei Fever and McCarrison's Three Day Chittul Fever and Breakbone Dengue seems quite a different story, but from the literature and from the description of true dengue given in conversation with men who contracted it in the Rangoon and Madras epidemic of 1902, this latter fever, at least, appears to me to be quite a distinct entity.

It would be most instructive to hear what Major Rogers thinks of these Nowshera cases, which Colonel Wimberley has reported.

ST THOMAS MOUNT,
MADRAS

Yours etc,
H STOTT,
Lt, I.M.S.

SEVEN DAY FEVER

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I am much obliged to you for your courtesy in sending me Lieutenant H Stott's letter on Seven Day Fever for comment. In the absence of any important new facts regarding the etiology of this fever, I had not intended to have returned to the subject, which is not likely to be advanced much further by clinical work, while even a settlement of the present controversy on these short fevers would be of little practical importance compared to the fact of their differentiation from malarial fevers with which they had been so long confused. Nevertheless, I may state that I am in agreement with Dr Stott that Colonel Wimberley's cases more closely resemble Seven Day Fever than Three Day Fever, and also with his explanation of much of the confusion as being due to the exact date of the onset of the fever being often earlier than thought in the mild cases which frequently only come to the doctor during the terminal rise of temperature, as occurred in almost half my original cases. Personally the simple fact that McCarrison never saw a typical saddle back seven day chart in several hundred cases of Chittul Fever (the duration of which he gives as two or three days rarely extending to 84 hours), is to my mind alone conclusive against Three Day Fever of the Punjab being identical with Calcutta Seven Day Fever, for in patients seen early in the disease neither Major J. G. Murray nor myself ever saw a case of the latter fever at the General Hospital, Calcutta, of a short duration as three days, while only 3 per cent were under five days. Even including the terminal cases only 2 per cent of the whole ended within three days, and in these the history of onset is not beyond question. The frequency of cases showing high continued fever for seven days is absolutely indistinguishable from typhoid in Calcutta is also quite unlike any cases described in dengue epidemics, and personally I fail to see why dengue should become so much more prolonged and severe when it assumes a sporadic form, as it has been said to have done. If it has become sporadic did this occur after the great 1824 pandemic or only after the equally widespread one in 1872? If after the former how could the latter universal prevalence arise in a population in which the disease had been sporadic for nearly fifty years? If only after the latter, why did it not become sporadic after the earlier epidemic? I fear we must patiently wait the discovery of the causative organisms of these various fevers before such barren speculations can be laid to rest.

Yours, etc,
LEONARD ROGERS

THE OPIUM QUESTION IN CHINA

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—In the August *Indian Medical Gazette* in your article on "the Illegal Trade in Cocaine" you imply that the Chinese are wholly insincere in their profession of wishing to rid their country of the opium habit. On the other hand, you at least imply praise for those in America who are trying to rid their country of the cocaine habit. If one is to take all the evidence that is available as to China's sincerity in this matter, and not just the prejudice opinion expressed by those who live in the treaty ports, who know little or nothing of the real life of the people and who are naturally biased in their opinion seeing their own pockets suffer, there seems to be no doubt whatever that the Chinese Government, as a whole, are at least strongly desirous (whether they will succeed or not) of ridding their country by the opium habit. In your editorial you take for granted without producing any evidence that China will take up the cocaine habit instead, supposing she is able to rid herself of opium. I think, if one studies the relative effects of the two "habits," that this is not at all so logical a result to arrive at as it might at first appear. There is no doubt that the effects of cocaine are much more rapid than those of opium or morphia in causing destruction and wasting of the tissues of the body. While people may take morphia for years without any one,

but their nearest friends knowing it cocaine reduces the habituate to a skeleton in as short a time as a month.

For this very reason it is impossible for me to believe that it could ever become a national habit such as opium is in China.

The evil effects are too self evident. Granting that China is sincere in her desire to abolish the opium habit (what we must grant if we suppose there is the danger of cocaine being substituted), would she not be far more energetic in the putting down of the cocaine habit?

While cocaine is much more rapid in the onset by the habit, it is possible to check the habit in the individual much more rapidly. I have had a patient, who had been reduced to a skeleton in a month by cocaine, entirely leave off the habit in six weeks. During the latter part of which times she gained a stone in weight a week. Stringently enforced rules for stopping the sale of cocaine would not therefore fall so hard on its habituates as similar rules for the prevention of the sale of opium or morphine.

While the opium habit is a far more destructive disease in China than it is in India due to the nature of the people and seeing it is smoked in China as a rule and only eaten in India yet those medical men who have not an opportunity of mixing constantly with the natives of this country, little realise how much evil it does.

I have had a patient, who was taking 8 grains of morphine a day, came into the hospital to be cured of the habit, and suffer what must have been great agonies entirely of her own will until she had given up the habit. This same patient when staying in Calcutta a year later went to a hospital there and without enquiries into her former states was recommended to take opium by the doctor in charge. I have constantly patients who come wishing to give up the habit.

Not only has the opium habit a detrimental effect upon the higher parts of the brain but it often apparently fixes the disease, for the relief of which it is first taken, in the tissues of the patient, making it next to impossible to cure him of the disease until the opium habit is given up. There is a great deal said of the loss to India in revenue which the suppression of poppy cultivation is causing but there is very little said about the hardships of those who will lose their livelihood as cultivators which seems to me a far stronger argument for those who are opposed to giving up the production of opium in India.

Still there is another side to the question and the "well meaning enthusiasts" are not always entirely devoid of sound logic.

ERNEST MUIR, M.D.
(EDIN.)

MISSION HOSPITAL, }
KALNA

THERAPEUTIC NOTICES

Messrs Bunnings, Wellcome of London, send us specimens of Tabloids & Co., LODAL (gr 1) which is an opium derivative described as follows—

'LODAL' is prepared by the oxidation of laudanose (an alkaloid occurring in opium) in a manner analogous to the preparation of cotinine from nicotine.

The physiological action of 'LODAL' resembles that of cotinine, in producing tonic contraction in the pregnant and non pregnant uterus. It differs, however, in that 'LODAL' exercises more effect on the heart, slowing and strengthening the beat, and producing a rise in blood pressure in which vaso constriction is a definite factor. It has much the same effect on the higher centres but its action in this respect is more powerful than that of cotinine. Clinically it has been used with good effect in cases of uterine hemorrhage.

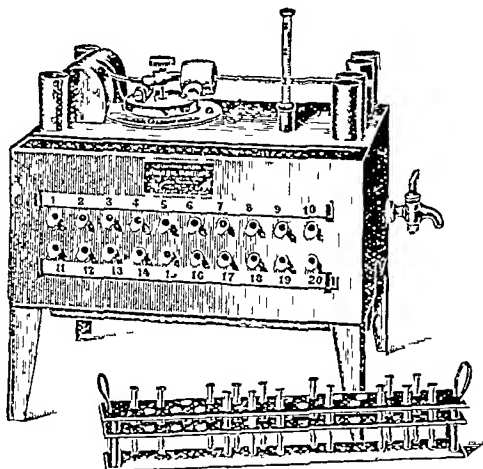
DIRECTION—One, swallowed with a little water, three times a day.

Jeyes' Sanitary Compounds Co., Ltd, are so well known and CELEBRATED especially that we are not surprised to find that this Company's Disinfectants have been awarded the GRAND PRIZE at the Japan British Exhibition in London. This is the 133rd time this Company's Disinfectants have received gold medals and similar awards.

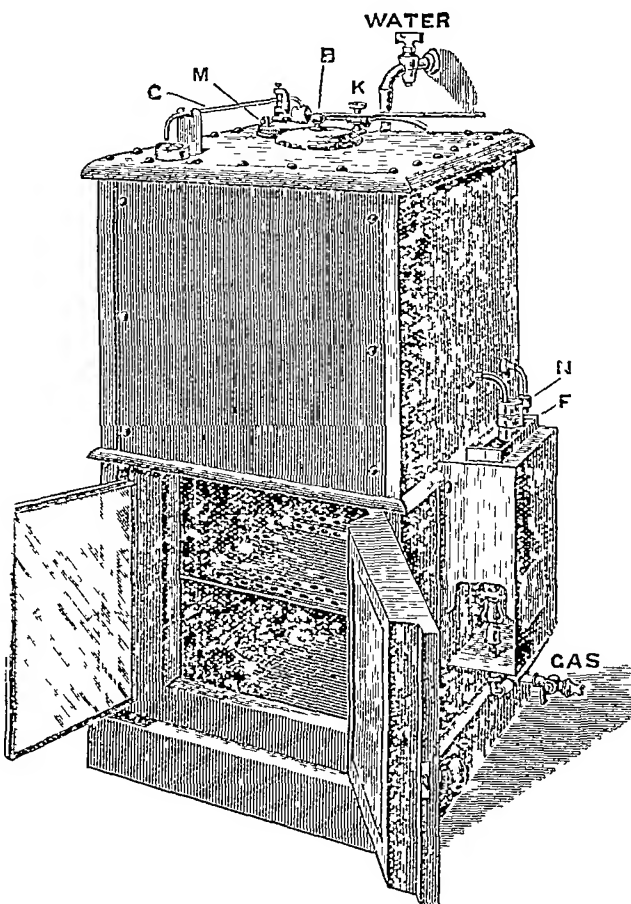
BIOLOGICAL AND OTHER INCUBATORS

Patent Opsonic Incubator—This apparatus is an adaptation of the principle of Hearson's well known Incubators to the process connected with the determination of Opsonic Indices, and consists of a strong copper vessel, nickel plated, with a number of small tubes to take pipettes. The tubes fitted on the top are for culture tubes and the tray in front is arranged for tubes in pairs for the Wassermann reaction, as suggested by Dr D'Este Emery, of King's College Hospital, London. The apparatus can be worked with either oil, gas or electricity.

Cool Biological Incubator—The chief feature of this cool Incubator is that it will remain constant at 20 degrees C or any other predetermined temperature, and can be worked with any kind of gas petroleum or with electricity for heating, and ice for cooling. It is specially useful for the cultivation in gelatine in summer or in hot climates.



HEARSON'S INCUBATORS



HEARSON'S INCUBATORS

In addition to these Incubators Messrs Hearson & Co manufacture many kinds of scientific appliances and are prepared to work out at the suggestion of their customers and at their own expense, any apparatus they deem to be of sufficient importance or utility to warrant such a course. Scientists requiring special apparatus for laboratory work should therefore avail themselves of the firm's extensive knowledge and practical experience. Illustrated catalogue of incubators biological and pathological apparatus, centrifuges and autoclaves, can be had on application to Charles Hearson & Co., Ltd, 235, Regent Street, London, England.

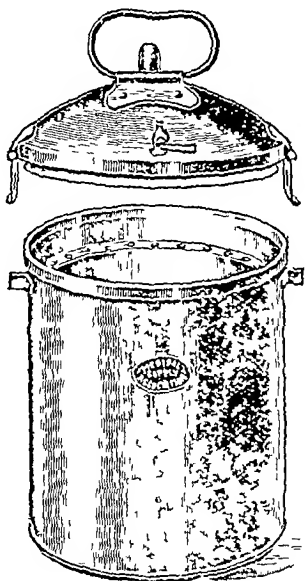
MESSRS SIEMENS BROTHERS & Co., Ltd, London, send us out copies of the literature prepared for the B. M. Association meeting in London held in July last. The pamphlets

are splendidly got up and illustrated, and give full descriptions of the well known electro medical apparatus made by this firm. The Supplement on X RAY TUBES and Accessories is especially valuable and a publication on RADIUM SALTS, &c gives a practical description and prices of various Radium Salts and applicators. A description is also given of radio active (actiniferous) earths based on recent researches. We commend these publications to all requiring electrical apparatus.

Mr. A. SOUSA, Health Officer, Allahabad sends us a pamphlet describing his patent INCINERATOR LATPINE, which won the silver medal at the Allahabad District Exhibition this year. This is worked by dry as a latrine and by night as an incinerator.

The solids and liquids are separated. The solids are reduced to ashes by incineration and the liquids are boiled by the same heat. It is claimed that there is no odour during incineration and that flies are kept away. From the description given and plan attached, we are inclined to think that the combination of incinerator and latrine would be very useful.

The Medical Supply Association, London, sends us a description of what they call MACDONALD'S STERILISER, price from 3 guineas. It seems to be a cheap and efficient means of sterilising dressings. A full description may be obtained from the Medical Supply Association, 228, Gray's Inn Road, London, W.C.

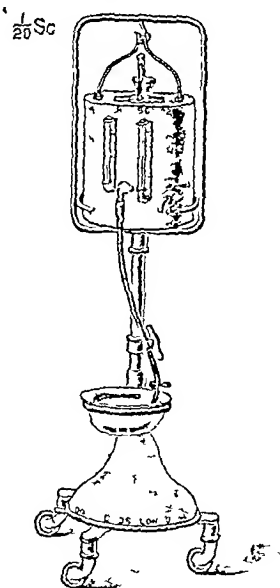


CONTINUOUS PROCTOCLYSIS

Dr. A. R. W. HIRD, House Surgeon, General Hospital, Birmingham, sent us the following description of an apparatus designed for its administration (Registered).

There are two methods of administering continuous rectal saline with which I am acquainted (1) the form advocated by Dr. J. B. Murphy, and (2) the 'drop' method. The following is a description of the apparatus which I have devised for the administration of continuous rectal saline injections, with due regard to the essentials enumerated by Professor Murphy. It consists of a metal can of 1½ pints capacity, the interior of which has been prepared, so that the saline solution will have no corrosive action upon it. This vessel is surrounded by a hot water jacket, the water jacket is protected by a thick layer of non-conducting materials. The whole is enclosed in a polished metal case, which is further protected by an outer covering of thick felt. On the front of the apparatus are two glass gauges. One communicates with the interior of the saline can and is graduated in half pints, so that the amount of saline entering the rectum can be readily estimated, the other communicates with the interior of the water jacket. By means of it the jacket can be filled accurately without spilling. The capacity of the water jacket is 7½ pints, and it is filled by means of a funnel fixed on to the top of the apparatus. It can be easily emptied by the tap shown in the illustration. The aperture of the saline tank is large enough to admit the hand, so that it can be readily cleaned after use. It is closed by a metal lid which has a rubber core in the centre. Through this core a Fahrenheit thermometer enclosed in a metal case is fixed so that the temperature of the saline in the reservoir can be easily noted. Both the indicator and the outlet of the saline tank can be removed for cleaning. The saline leaves the can through a delivery tube of three eighths of an inch bore, this tube is 3 feet in length and is connected to a large rubber rectal tube by a glass junction.

The apparatus is suspended on an adjustable stand mounted on ball bearing castors so that it can be readily wheeled up to the bed side. Messrs. Down Brothers showed me a stand of their own design which can be raised and lowered by turning a handle, this is an ideal one for the purpose.



working of this apparatus. Once it has been correctly adjusted both the saline tank and the hot water jacket can be replenished without interfering in any way with its proper working. The temperature of the saline solution and the water required to fill the apparatus is 110°F when used without a constriction on the delivery tube. If a constriction on the delivery tube is used both the saline solution and the water must be 212°F and the constriction whether it be screw clip or forceps, should be placed near to the outlet of the tank if possible. The saline solution can will need replenishing every hour, this is no detriment, for in my experience patients who are given continuous saline are generally so ill that they require attention more often than that. The hot water in the jacket requires to be changed about every two or three hours, in any case it is not necessary to withdraw all of it.

A serious attempt is being made in England to treat *favus* which in many Board schools affects a large number of children. Sir Dyce Duckworth reports two cases in the Reports of St. Bartholomew's Hospital which were well and rapidly healed by a solution of IZAL in glycerine. The strength of the izal was increased till almost pure izal was used.

Messrs. Burroughs, Wellcome & Co. had the following drugs exhibited at the recent meeting of the British Medical Association.

'SOANIN' (Sodium Para-aminophenylarsonate) contains 22.5 per cent of arsenum and is readily soluble in water. It has less than 1/140 the toxicity of arsenious acid and has been used with beneficial results in syphilis, trypanosomiasis and other protozoal diseases.

On account of its reliability of action the ergot preparation 'Ergutin' continues to grow in favour, possessing as it does all the valuable principles of ergot but without the uncertainty of action usually associated with that drug.

'NIZIN', a zinc salt of sulphurilic acid, forms a most valuable injection in acute gonorrhoea. It is antiseptic and in the strengths of solution recommended for use is non-irritating and non-toxic.

'LODAL' is an oxidation product of lundomine, an alkaloid occurring in opium. It produces a rise in blood pressure whilst strengthening and slowing the heart beat. It produces tonic contraction of the uterus and has been used with good results in cases of uterine haemorrhage.

The use of animal substances as medicines has steadily increased during recent years and Messrs. Burroughs, Wellcome & Co. have a fine display of such medicaments. 'Tabloid' Thyroid Gland Pituitary (Infundibular) Extract, etc., are included in this branch of therapeutic remedies. The exhibit also included an extensive selection of the 'Wellcome' Brand Serum, Tuberculin and Vaccines. The list of these is more comprehensive than ever, several additions having been made. Among the more recent we noticed Coriava Vaccine, Influenza Vaccine, New Tuberculin (W).

All these are prepared under strictly scientific conditions and are not allowed to be issued until they have passed the stringent tests for non-toxicity and sterility.

In order to ensure absolute purity and potency in preparations for hypodermic injection, Messrs Burroughs, Wellcome & Co issue under the VAPOROLE Brand a series of preparations enclosed in hermetically sealed glass containers of special design

Hardmuth's pencils made in 17 kinds are so well known as to require no notice from us. We can especially recommend the KOH I NOOR pencil. Their copying pencil Mephisto is also a reliable one.

WATERMAN'S fountain pens are well known and reliable. They are made in many varieties and Waterman's IDEAL is recommended as a perfect fountain pen.

Service Notes.

AN extension of leave for two months and 19 days has been granted to Lieutenant-Colonel R E S Davis, I M S, of Rangoon.

CAPTAIN S C CHUCKERBUTTY, I M S, is posted for plague duty in Bassein.

CAPTAIN G H STEWARD, I M S, in an amended notification, was granted study leave from May 11th to December 10th, 1909, and from 13th January to 12th March 1910.

MAJOR C R PEARSE, I M S, temporarily acted for Major Duer, F R C S, I M S, on the latter's transfer as Civil Surgeon of Simla.

LIEUTENANT COLONEL CLEVELAND, I M S, Secretary to the P M O India, has gone home on leave and Major Grange, I M S, acts for him.

ON return from duty at Pachmarhi Captain J M C Mac Millan, F R C S, is posted as Civil Surgeon, Hoshangabad, C P.

WITH reference to Rule 3 of the rules contained in General Department Notification No 301, dated the 7th August 1908, Lieutenant S C Chuckerbutty, I M S, the Officer on Special Plague duty in Bassein Town, is invested by the Local Government with the powers conferred on the Deputy Commissioner by Rules 7, 11, 12, 18, 34, 35, 37, 38, 40 and 42 of those Rules.

THE services of Captain W H Boalch, I M S, are replaced at the disposal of the Commander in Chief. He has been on special plague duty in Burma.

WITH the approval of the Right Honble the Secretary of State for India an exchange is sanctioned between Captain R K White, Indian Medical Service, and Captain A A McNeight, M B, Royal Army Medical Corps, with effect from the 11th July 1910.

CAPTAIN R K WHITE, it may be remembered, was attacked with Cholera in the sudden outbreak in the house of the Commissioner of Budwan Division at Hughli in which both Mr and Mrs Barnard lost their lives. Captain White immediately afterwards suffered from liver abscess and was sent home on sick leave.

CAPTAIN H ROSS, I M S, has joined the Civil Medical Department of United Provinces and is posted as Civil Surgeon of Etawah.

MAJOR T W A BUIST, I M S, made over charge of Ambala Jail to Assistant Surgeon L M Dyer, on 25th July 1910.

CAPTAIN A CAMERON, I M S, is posted as District Plague Medical Officer, Gurdaspur, from 2nd July, *vice* Captain W W Jendwine, I M S.

CAPTAIN N S SODHI, I M S, took charge of his duties as Plague Officer, Amritsar, on 23rd June.

MAJOR E L PERRY, D P H, I M S, is confirmed as Deputy Sanitary Commissioner, Punjab, from 12th July 1910.

WE regret to have to record the death of Captain E D Simson, I M S, from cholera at Nowshera on 22nd July. Captain Simson entered the I M S on 2nd February 1907, and was acting Medical Officer to the 35th Dogias. He was well known all over the Three Kingdoms as an athlete and was one of the finest Rugby footballers who ever played for Scotland, he played in 17 International Matches. He was only 28 years of age.

CAPTAIN F W SUMNER, I M S, Civil Surgeon, Bijnor, privilege leave for one month, with effect from the 1st September 1910.

CAPTAIN H R NUTT, I M S, Officiating Civil Surgeon, Fatehgarh, privilege leave for one month, with effect from the 1st September 1910.

MAJOR E J MORGAN, I M S, Civil Surgeon, Sitapur, famine extra privilege leave for one month, with effect from the 15th September 1910.

CIVIL ASSISTANT SURGEON LACHMI NARAYAN RAI attached to the Sadar Dispensary, Bijnor, to hold Civil Medical charge of the district, in addition to his own duties, *vice* Captain F W Sumner, I M S, granted leave.

CIVIL ASSISTANT SURGEON SAGAR PRASAD NEOGI, attached to the Sadar Dispensary Faizulhabad to hold Civil Medical charge of the district, in addition to his own duties, *vice* Captain H R Nutt, I M S, granted leave.

CIVIL ASSISTANT SURGEON SHASHI BHUSHAN BANARJI, attached to the Sadar Dispensary, Sitapur, to hold Civil Medical charge of the district, in addition to his own duties, *vice* Major E J Morgan, I M S, granted leave.

CAPTAIN H ROSS, I M S, Officiating Civil Surgeon of Etawah, is placed on special duty in connection with the establishment of the Medical College at Lucknow.

MAJOR A W R COCHRANE, I M S, Superintendent of the Lunatic Asylum at Agia, is deputed to Kasauli for training in clinical bacteriology and technique.

LIEUTENANT COLONEL S H HENDERSON, I M S, Superintendent of the Central Prison at Agia, to hold charge of the Lunatic Asylum at Agia, in addition to his own duties, *vice* Major A W R Cochrane, I M S, deputed to Kasauli.

MAJOR G HUTCHESON, I M S, Civil Surgeon of Aligarh, is deputed to Kasauli for training in clinical bacteriology and technique.

CAPTAIN M H THORNELEY, I M S, has taken the F R C S of Edinburgh.

MAJOR HERBERT J WALTON, F R C S, I M S, has taken the M D (London) in Tropical Medicine and won the "University Medal."

MAJOR J G P MURRAY, I M S, has taken the M D (Edin), "highly commended"

THE Lieutenant Governor is pleased to accept the resignation by Colonel W G King, C I E, I M S, Inspector General of Civil Hospitals, Burma, of his appointment as a member of the Educational Syndicate

THE Lieutenant-Governor is pleased to appoint Colonel H St G Caruthers, I M S, Officiating Inspector General of Civil Hospitals, Burma, to be a member of the Educational Syndicate, in place of Colonel W G King C I E, I M S, who has resigned

THE services of Captain W H Boalch, I M S are replaced at the disposal of the Government of India in the Home Department

THE Lieutenant-Governor of the Punjab is pleased to make the following promotions and reversions among Civil Surgeons —

Name	From	To	With effect from	REMARKS
Major E L Perry, I M S	Offg Civil Surgeon, 2nd class	Civil Surgeon, 2nd class, sub <i>pro tem</i>	1st October 1906	<i>Vice</i> Major J Stephenson, Civil Surgeon, 2nd class, seconded
Lieutenant Colonel D M Davidson, I M S	Offg Civil Surgeon, 1st class	Civil Surgeon, 1st class	3rd July 1907	In supersession of Punjab Government Notifications Nos 750 and 751, dated 16th September 1907, and consequent on the retirement of Lieutenant Colonel W Coates, I M S, Civil Surgeon, 1st class
Major E L Perry, I M S	Civil Surgeon, 2nd class, sub <i>pro tem</i>	Civil Surgeon, 2nd class		
Major G McI C Smith, I M S	Offg Civil Surgeon, 2nd class	Civil Surgeon, 2nd class sub <i>pro tem</i>		
<i>Note</i> —The excess in the cadre from 1st December 1905 to be absorbed from the 14th June 1909 in the vacancy due to the confirmation of Major E V Hugo as Professor of Surgery in the Medical College, Lahore, <i>vice</i> Lieutenant Colonel F F Perry, retired				
Lieutenant Colonel W R Clark, I M S	Offg Civil Surgeon, 1st class	Civil Surgeon, 1st class	22nd June 1909	Consequent on the retirement of Lieutenant-Colonel S Little, I M S, Civil Surgeon, 1st class
Major G McI C Smith, I M S	Civil Surgeon, 2nd class sub <i>pro tem</i>	Civil Surgeon, 2nd class		
Captain M Conly, I M S	Offg Civil Surgeon, 2nd class	Civil Surgeon, 2nd class, sub <i>pro tem</i>	13th August 1909	Consequent on the retirement of Lieutenant Colonel T R Muloney, Civil Surgeon, 1st class
Lieutenant Colonel C Coleman, I M S	Civil Surgeon, 2nd class	Civil Surgeon, 1st class		
Rai Bahadur Thakur Das	Senior Assistant Surgeon	Civil Surgeon		

LIEUTENANT COLONEL W H E WOODWRIGHT, I M S, Civil Surgeon, Bareilly, to hold charge of the current duties of medical officer of the Central Prison, Bareilly, in addition to his other duties, *vice* Major C B Piall, I M S, granted leave

MAJOR P C GABBETT, I M S, Professor of Surgery, Madras, was granted two years combined leave out of India on or after 25th August, 1910

MAJOR T H SYMONS, I M S, was due back to Madras on 25th August 1910

WE regret to learn that Major J Mulvany, I M S, was attacked with appendicitis and was operated on at Poona mouth. We are glad to say that he is recovering rapidly

THE Government of India have been pleased to sanction, with effect from 1st July 1910, the rates of the extra medical charge allowances admissible to Hospital Assistants of the Indian Subordinate Medical Department, being increased from Rs 5, 10 and 15 as laid down in paragraph 957 (2) Army Regulations, India, Volume I (1909 edition), to Rs 10, 15 and 20 per mensem, respectively

Notice

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BOOKS, REPORTS, &c, RECEIVED —

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 Advice to Consumptives
 Allbutt's System, Vol VII (Macmillan's)
 Whitla's Materia Medica (9th Ed) Balliere, Tindall & Cox.
 Martindale's Extra Pharmacopoeia 14th Ed (H K Lewis)

Martindale's Organic Analysis Chart H K Lewis
 Hirst's Obstetrics H B Saunders & Co
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 Basu's Dietetic Treatment of Diabetes Panini Press
 U P Report on Hospitals
 Punjab Hospitals Report
 The King Institute Report
 St John's Ambulance Report
 Madras Sanitary Report for 1909
 Bengal Sanitary Report for 1909
 Anatomy of Watsonius Watson Stiles Washington Bulletin No 60
 The Hong-kong Medical and Sanitary Report
 McFarland's Pathology (New Ed) Saunders & Co
 Atlas of Pathological Anatomy Irenkel and Rompel In 6 parts (Vol I, received)
 Dr Ray's Outlines of Medical Jurisprudence and Toxicology

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Original Articles.

A NEW METHOD OF MAKING PERMANENT PREPARATIONS OF MOSQUITOES

By C A BENTLEY, M B, D P H,

AND

J TAYLOR, M D,

CAPT, I M S,

Bombay

THOSE who have attempted to preserve mosquitoes in the manner generally recommended, *viz*, as dry pinned specimens, and have watched the gradual deterioration of their collection in spite of every precaution which they may have adopted, will welcome the description of a new method of mounting mosquitoes. The specimens preserved in the manner described below will be found to show all the points necessary for identification, they can be prepared without great difficulty, can be handled without risk of damage, and are ideal for demonstration purposes.

Most people who have worked with mosquitoes have at one time or another attempted to preserve them in balsam. This, of course, is quite hopeless, as directly the balsam touches the mosquito, the scales float off and the specimen is rapidly cleared and becomes almost transparent.

In this new method the specimen is primarily fixed and coated with a thin covering of celloidin, which protects the mosquito from the clearing action of the balsam and prevents the dislodgment of the scales and hairs. The natural appearance of the insect is thus preserved.

Method—The materials required are—

Cover slips, No 2. Circles

Hollow ground slides

Fine forceps

Mounted needles, two

Alcoholic solution of celloidin, 3 per cent

Emulsion of zinc oxide in xylol Balsam

The mosquitoes to be mounted should preferably be bled-out specimens which have been allowed to harden for some hours before killing.

A live specimen should be transferred to a test-tube or small bottle, and this should be inverted upon a small board upon which a little chloroform has been dropped.

The mosquito should be merely stupefied and if too much chloroform has not been used, it will frequently fall upon its back with the wings spread out. The absorption of chloroform by the wood will prevent actual wetting of the specimen which would damage the scales.

A drop of the celloidin solution is now placed on a cover slip and the mosquito is picked up with the forceps by one of its legs and dropped

back downwards on to the cover slip. If the wings are still closed they are gently drawn out at right angles to the body, using two needles for this purpose and making traction upon both wings at the same time. The legs are now carefully arranged and put down into the celloidin solution on the cover slip, more solution being added if necessary.

If the legs have fallen into the celloidin solution before the wings have been arranged in their proper places, a little careful manipulation with the needles will enable one to pass the wings under the legs or *vice versa*, and a few final touches to the antennæ, etc., will bring all the parts into their proper relation.

Another drop of celloidin solution is now put over the specimen which is then allowed to dry. After about half-an-hour a further drop of the solution is placed over the thorax and this again is allowed to become nearly dry.

The specimen is then ready for mounting, either in ordinary balsam, or in the mixture of zinc oxide and balsam, which is less liable to penetrate the celloidin than ordinary balsam, and at the same time shows up the points of the specimen to advantage.

To prepare this zinc balsam, the zinc oxide should be sifted through fine muslin and a sufficient quantity added very gradually to xylol balsam until a thick uniform opaque white mixture has been obtained.

A big drop of this zinc balsam is placed in the hollow of a slide which is then inverted upon the specimen ready prepared on the cover slip. The hollow of the slide prevents the crushing of the specimen and saves the bulky thorax from damage.

Although an advantage, hollow slides may be dispensed with, if the thorax of the fixed mosquito is carefully snipped off by means of a pair of fine dissectors.

As zinc balsam takes some time to harden, specimens should be kept face downwards for several days until hardening has taken place.

PRECAUTIONS

Strength of Celloidin Solution to be used—This will depend largely upon the atmospheric conditions, a weaker solution being necessary when drying is rapid. The point to be aimed at is to obtain a solution which will allow sufficient time for manipulating the specimens with needles and at the same time will afford an adequate coating.

The tendency at first will be to use too strong a solution of celloidin. Ethereal solutions should on no account be used, as the rapid evaporation leads to the formation of air bubbles which ruin the specimen.

Drying of the Specimen before Mounting—If the specimen be allowed to dry for too long before the final mounting, the contraction of the celloidin will result in the formation of cracks

through which the balsam will subsequently penetrate, or it may be found that separation of the mosquito from the surface of the cover slip is taking place.

As an alternative method of final mounting, the zinc balsam may be replaced by a mixture of Plaster of Paris and white of egg. This should be freshly prepared and made very thick. Specimens mounted in this medium will stand rough handling after twenty-four hours, and it will therefore be found useful for rapid work.

The method of mounting mosquitoes described above will be found useful for preserving many other small-bodied flies, besides mosquitoes, and will, we think, be welcomed by all those who wish to make collection under tropical conditions. The specimens obtained in this way are suitable for examination under the microscope or by means of a hand lens, and excellent microphotographs may be produced from them without difficulty.

THE VALUE OF ADRENALIN AND PITUITRIN IN THE TREATMENT OF CHOLERA.

BY H. E. DRAKE BROCKMAN,

LIEUT. COLONEL, I. M. S.,

Residency Surgeon, Indore

CHOLERA has been pretty widely distributed throughout India this year and has also found its way into Europe and other countries, we have, moreover, been afflicted with a slight visitation of it here, which has given one an opportunity of personally treating the disease. On the occurrence of the first few cases, by early application of the treatment by saline injections intra-muscular and otherwise, one has been able to save a very fair proportion of cases, but it struck me very forcibly that, owing to the condition of most of the patients when first seen, that is, after a number of copious characteristic stools and vomit had occurred, it was useless to expect that much absorption of the saline solution would take place, as quite a number of the cases were in the algide stage well advanced and in a profound state of collapse, pulseless, speechless, etc., and the vessels and tissues were more or less drained and empty, in fact, the blood had already been practically drained of its serum. The obvious and essential line of action, therefore, seemed to me to be to prevent this drain as soon as possible and at the start off to encourage vaso-constriction generally all over the body, and that to follow this line of action from the start would be not only more scientific but more likely to save the life of a patient by enabling him also to utilize any saline infusion that might be absorbed (whether

given by any method, intra-muscular, venous, or peritoneally) into the vessels, causing thereby directly vaso-constriction and stimulation of the heart to act and quickly establish the circulation generally over the body, all the other remedies usually adopted in the way of aiding warmth and circulation to avoid collapse, being of secondary importance, but of course should be duly carried out as valuable adjuncts. We have usually at hand in most of our dispensaries in India that useful drug-Adrenalin Chloride in some form or other, and in the last five cases of the disease which have come under treatment, some of which have been desperate, an injection of 5 minims of Adrenalin in normal saline solution of a strength of 1 in 10,000 has been given at the start with the most encouraging results, acting like a charm and speedily establishing the circulation and stimulating the heart, with the disappearance of cramps and other symptoms, so that I now make a routine practice of making such an injection, for obviously it is sounder to prevent rather than attempt to cure in this deadly and fatal disease, where, too, time is an object of the greatest importance in treatment. By means of this drug we can produce vaso-constriction from the very first to prevent the rapid flow of serum from the abdominal vessels *via* the bowels as shown in the dejecta and vomit. In some cases of cholera a few copious vomits and purgings are quite enough to start speedy collapse and no amount of saline infusion of itself will prevent this drain of fluid, which is due to a vaso-dilator change brought about, I presume, as a result of the specific toxin (generated by the cholera bacillus in its rapid growth in the alimentary tract) being rapidly absorbed and carried into the cerebral circulation, acting there directly on the regulating centres. A doubly advantageous effect, therefore, is produced by the exhibition of Adrenalin at an early stage of cholera, for the same factor which produces vaso-constriction of the mesenteric vessels entailing less loss of serum therefrom, will also in great measure thereby prevent as much absorption of the toxin by the bloodvessels as would otherwise occur, and therefore minimizes the actual amount of the specific toxin being distributed to the cerebral circulation, and any chance of reaction through the cerebral centres, keeping up the excessive exudation of serum from the bowels, for anyone who has seen recent choleraic stools must be impressed with the extreme congestion that must be going on inside, and the enormous amount of epithelial necrosis and shedding co-existent with the evacuations. The whole clinical symptoms present are similar to those of a very severe and sudden hæmorrhage, and I am of opinion that the rational lines upon which to treat cholera, are to follow rigorously the treatment adopted for that condition, *viz*, firstly, at all costs to stimulate the heart to keep the circulation going and prevent further loss of serum by

producing artificially general vaso-constriction, and, secondly, at the same time to provide the wherewithal in the way of saline infusions by supplying the blood with any loss of serum as quickly as possible, and, thirdly, to re-establish the flow of urine speedily. I hold that all these important conditions are amply and satisfactorily complied with by the early exhibition of Adrenalin, or Pituitrin, whichever is at hand, in all cases of cholera. The indiscriminate use of Adrenalin (either intra-muscular or intra-venous) is not to be recommended, but if given in small doses, and in the proportions I mention, I think little danger of overdose is likely. Moreover, I do not hesitate to repeat the dose in a fairly short interval if there is little response, at the same time, of course, keeping up all auxiliary measures to prevent onset, or retard progress, of collapse. It must be remembered that Adrenalin has a very powerful effect upon the vaso-motor centre, and that not only is its effect markedly shown in this way, but by actual stimulation of the myocardium itself, for Cile in America showed experimentally that a decapitated dog could be kept alive for many hours by the action of Adrenalin with Saline Solution upon the heart and bloodvessels. Another and very important action of this drug is its effect upon the kidneys, it increases the flow of urine, so that we have in it, I consider, the most important therapeutical agent in combating all the urgent and dangerous symptoms of cholera, which usually tend to an early fatal result, *viz*, collapse, cardiac failure, and suppression of urine and all these are immediately relieved by this drug. The one drawback is that the effects of this drug may be, and undoubtedly are, in some cases, transient in character, but as matters are usually desperate, early action as well as results must be looked for, and a repetition of the dose can be easily given if necessary, but in this connection, when available, possibly Pituitrin, which is an extract of the infundibular or posterior portion of the Pituitary gland, may be exhibited with more advantage, as its effects upon the circulation, though similar to Adrenalin, are much more prolonged, and that being so, I suggest that in the treatment of this disease it would be better to start off with an injection of this drug straight away. My chief reason for mentioning Adrenalin in this connection is the fact that owing to its extreme usefulness in ophthalmic surgery, nearly every dispensary in India possesses some, and it is therefore usually available. As Adrenalin in large doses is not only inadvisable but may be dangerous, and moreover as its action is more or less transient, it is best given in small doses well diluted and if necessary frequently repeated. I have personally found that the intra-muscular injection speedily shows good results, specially if the patient is taken in hand on first appearance of symptoms, but a small

addition of the drug to the Saline infusions per rectum, if done properly and fully (*re*, thrown *well* up the bowel in sufficient quantity, and retained there for several minutes by plugging the rectum and raising the pelvis, to aid this end) is also invaluable as acting directly upon the mesenteric vessels, when absorbed along with the saline infusions, and helps to prevent the drain of serum from local vessels, upon which it also will act as a powerful vaso-constrictor, for its local action is of course most marked, and according to some observers it is said to effect directly the blood vessels, and not act through the nerve centres. Though there is diversity of opinion on this point, it is more than probable that if it reaches the cerebral circulation, it certainly acts in some measure upon the vaso-motor centre directly. I have never seen any due results personally from hypodermic injection of Adrenalin into tissues, and I am in the habit of using it frequently, provided that the drug is well diluted with normal Saline solution before use, it may, however, be given with advantage by the mouth, or intravenously if great urgency arises. In the *Lancet* some years ago some mention was made of the use of this drug in an indirect way, I think, as an adjunct to other measures in the treatment of cholera, but I have recently tried it myself as a routine measure in cases, few though they be, but with recovery in each case, so that I consider it should be adopted now as a routine treatment in cholera, and it is with that object in view that I have ventured to at once place my experience in this matter before the notice of the profession, so that no time need be lost in giving it an extended trial. In places such as large hospitals where Pituitrin, or analogous preparations of Infundibular extract are available, of course it should be given in preference to Adrenalin, for the reasons mentioned before, as in it we possess a more valuable and powerful agent in the treatment of collapse from any cause, and which also has the additional virtue over Adrenalin of being safer when used by the hypodermic method. In the event, however, of any marked inhibitory action upon the heart being detected after administration of Adrenalin, this should be capable of relief by an injection of Atropin, but, as I have mentioned before, little chance of harm is done if the drugs are used in a very diluted form, and dissolved in sterilized normal Saline Solution prior to administration, which, if time is not an object and the condition of the patient permits of it, may be given orally instead of hypodermically with equally good results. After my recent experience, I have little doubt that the mortality from cholera will, by this treatment if intelligently carried out, be enormously reduced, and it is with that hope in view that I have published these notes, without waiting for further experience, and also in order to give those who have greater facilities than

myself, an early opportunity of giving this treatment an extended trial

PERSISTENT HICCOUGH AS A SEQUELA OF CHOLERAIC DIARRHŒA.

By W D KEYWORTH, M B (Cantab.), M R C P (Lond.),
LIEUT, I M S

THE following two cases occurred in Dinapore in April and May 1910. The cases were apparently unconnected, but both presented the above sequela

CASE (1)

Colour-Sergeant J D, of the 2nd K S L I—On the evening of Wednesday, April 20th, the patient with several others in the Sergeants' Mess partook of some tinned salmon, which had been purchased privately in Cantonments, several of the others were taken ill with vomiting but quickly recovered. The above patient, however, remained "queer" all the next day, 21st, and in the evening was taken ill with profuse diarrhœa and was admitted to the Station Hospital at 11 P M. He was then collapsed with low temperature, suppression of urine and frequent small pulse. The diarrhœa is described as having been watery but not presenting a rice-water appearance, and the comma bacillus was not seen in films made direct from the stools.

Next morning, 22nd, as the condition had not improved, four pints normal saline solution were given intravenously. From this point gradual improvement set and the diarrhœa disappeared during the next two or three days under ordinary astringent measures. On the day after admission, however, hiccough set in. This occurred in the form of repeated single acts of hiccough occurring sometimes every few minutes, while sometimes the patient was free for an hour or so. The patient took nourishment by the mouth well and never vomited his food. His sleep, however, was considerably disturbed by the hiccough. In spite of this, however, the patient's condition never gave rise to grave anxiety. The hiccough was found to be relieved by minute doses of Tinct. iodi given on sugar. This was administered hourly, if necessary. On the 28th, a week after admission, the hiccough gradually passed off under this treatment, and the patient became convalescent. No cause for the hiccough could be found, and after the initial collapse urine was passed freely and there was no evidence of nephritis or uræmia.

CASE (2)

Havildar D S, 7th Rajputs, was suddenly taken ill at 3 A M, on May 1st, with diarrhœa and vomiting. He had gone to bed in his usual

health and no definite cause for the attack could be found. The diarrhœa continuing after seven or eight motions he came to hospital with assistance at eight A M. His condition was then fair and his pulse about 100 and of good quality. Oil *leini* 3i with *Ti opu m x* was administered. A few minutes after reaching hospital patient passed a watery stool containing a deposit of white mucus. The comma bacillus could not be found in this in films made direct from the mucus.

At 8-30 A M (half an hour after admission), the patient became collapsed and intravenous infusion was decided on, meanwhile the patient was kept alive by hypodermic injections of strychnine and ether, and by rectal administration of salt solution. At 9 A M the pulse could not be felt, but the patient was just breathing. The median basilic vein was opened and two pints normal saline solution were run in rapidly (in 15 minutes), until the pulse could be felt, four more pints, making a total of six pints, were then run in slowly, the total time of administration being rather over two hours. The pulse was then of good quality but was not full and bounding as one would have liked, the administration was stopped rather because it was not thought advisable to give any more at the time. The diarrhœa had ceased, there being no more than the one stool above mentioned. The general condition was good and remained unchanged till the evening when hiccough gradually came on, this persisted on and off for seven days. It occurred in the form of attacks usually in the day time. Except on one night the patient always slept well and was free from the attacks. The attacks had no relation to food, occurring sometimes before, sometimes after food. This was taken well and was never vomited, sometimes it appeared to relieve the attacks sometimes to bring them on. An attack once started lasted usually 15—30 minutes and half a dozen or more such attacks occurred daily. Two or three times the patient vomited a few ounces of bile-stained fluid. Gastric lavage followed by stoppage of everything by the mouth for 24 hours was tried with no effect. The patient, however, was allowed to suck ice. Iodine tincture given by the mouth, according to the method which had been successful in the former case, was tried, but, though it appeared to relieve one or two attacks, it did not prevent the occurrence of subsequent attacks, nor did it check them when they occurred. Other methods of treatment tried were tongue traction, the administration of gastric sedatives, bismuth, etc., and of general sedatives such as potassium bromide and morphia. Rectal enemata were also tried. None of these methods met with much success, although one or the other occasionally relieved an attack. With regard to tongue traction it was found most satisfactory to let the patient do it himself. This he did by passing his finger behind the

tongue and in front of the epiglottis, and thus working the organ forwards. In this way several of the earlier attacks were checked, later, the effort seemed to wear off.

On the 7th day of illness the patient was put on diachm doses of magnesium sulphate given hourly, and after six doses had been given the hiccough passed off and never returned, whether this was a coincidence or the result of treatment it is impossible to say, but certainly the hiccough had been getting more troublesome and had begun to disturb the patient's sleep so I am inclined to think the mag. sulph. really had some beneficial effect.

The patient had by this time become very worn and thin but complete recovery occurred after some weeks' convalescence.

This case appeared to have no relation with case (1) or with any other case, and the article of food responsible for the illness was not discovered.

As regards the cause of the hiccough nothing was found. There was no evidence of uræmia and suppression of urine was present in neither case. In case (2) there was a cloud of albumen but nothing more, considering the severity of the case, the presence of a small quantity of albumen is not surprising.

Natives of India seem to be prone to hiccough, and it is a comparatively common complication of typhoid fever and pneumonia among them, but this does not explain why this complication occurred in case (1), who was a British soldier. Persistent hiccough is, of course, a recognised complication of cholera, and it would be interesting to hear the experience of other practitioners as to its frequency in such cases. "Irritability" of the stomach as the result of the acute infection, from which it is recovering, is the pathological condition which is, I understand, supposed to account for this reflex symptom. Why then, should the irritability not be manifested as vomiting?

Both cases were given intravenous saline solution, and in both cases the hiccough lasted till the 7th day of disease. There is no reason to connect the hiccough and the infusion.

It will be observed that in neither case was the saline solution recommended by Rogers used. This in case (2) treated by me was due to ignorance of Rogers' work on the subject.

For permission to make use of case (1) notes and for help in compiling them, I am indebted to Major C. H. Samman, R.A.M.C., and Capt. Scott-Williams, R.A.M.C., respectively.

From experience derived from these cases I suggest that several methods of treatment should be given a trial successively in the hope that the appropriate method may be found. A thorough trial should be given to the tongue traction, tincture of iodine and magnesium sulphate methods.

THREE VARIETIES OF DWARFS

BY C. H. JAMES, F.R.C.S.,

MAJOR, I.M.S.,

Medical Adviser, Patiala State.

DWARFS have attracted the attention of the public from very early times. Sometimes, as appears in early English history, they have been supposed to be associated with evil or sinister circumstances, at others, especially on the continent, the presence of a dwarf was supposed to be a happy augury and to bring good luck to those in the same house. A still more curious fiction was the invention of Mr. Punch, a hunch-back dwarf, who embodies the soul of mirth and good humour. The dwarf in all these cases was usually the subject of spinal curvatures, hence the hunch or angular curvature. But there are many kinds of dwarfs. In fact, any disease which leads to stunting or extreme deformity of the lower extremities or the spinal column necessarily leads to stunting of the stature of the person so affected.

In the present paper, attention is drawn to varieties of dwarfism due rather to general disease. A short time ago, we had in Patiala town, five very fine specimens of dwarfs which illustrated three, not very uncommon varieties of what, for want of a better term, I may call this class of deformity. Through the kindness of H. H. the Maharaja I was able to get them collected together and photographed on a single plate (see illustration). For purposes of comparison, a normal man, whose height is 5 feet 6½ inches, is placed at the end of the line. The dwarfs form a queer little group and vary in height from 2 feet 1½ inches to 4 feet. The illustrations show at a glance their chief points of resemblance as well as those in which they differ.

In passing I may mention that they were all stated to be normal at the time of birth, the arrest of development is said to have taken place between babyhood and puberty, though, as I shall presently show, this is probably not correct. They are all isolated cases in the families in which they were born, and they are all in excellent health.

Now we come to the points in which some of them differ. No. 1, at the left of the line, is a sporadic cretin. She is a woman of 30 years of age. The stunted growth, the fat podgy limbs, the pot-belly, the large tongue, the vacant look, the actual want of intelligence and the harsh dry skin with a tendency to scaldiness in places make the diagnosis easy. Her sexual organs are entirely undeveloped, and no trace of a thyroid gland can be detected.

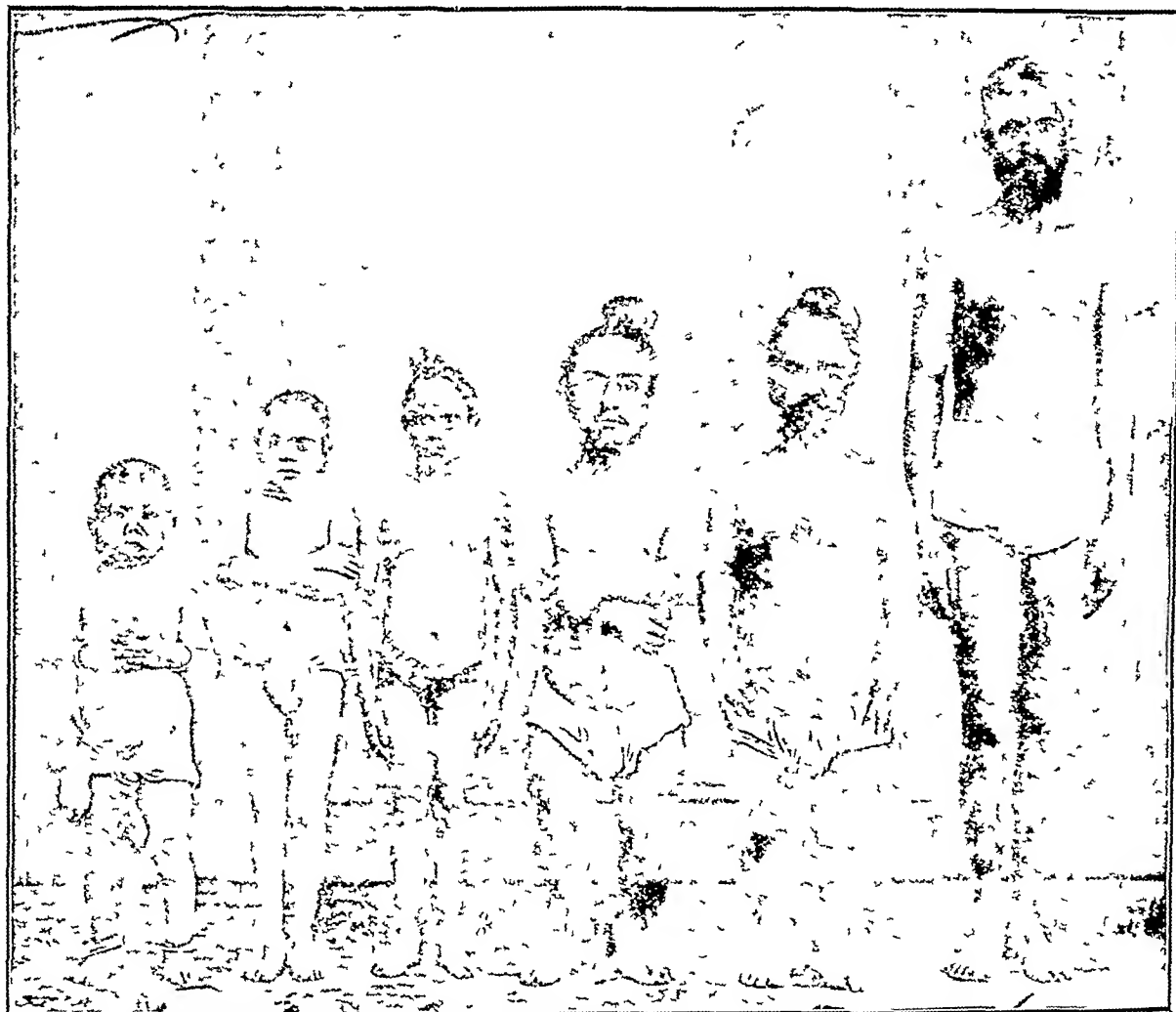
Nos. 2 and 3 are cases of true arrest of general development. They are cases of infantilism. No. 2 was aged 20 and No. 3, 28 years. The absolute symmetry of the limbs and their

proportions to the head and trunk are those of a man and not of boys. In both cases the intelligence was good and quite up to the average in the social scale to which these men belonged. I have known No 3 for many years. He is strong and active, a good rider in spite of the shortness of his legs, a roller-skater and as sharp as a needle in repartee where banter and pleasantry are concerned. It will be noticed in the photograph that he has slight moustaches. This began to appear when he was

It is only the arms and legs which are short and stunted in growth. The joints are large. Even the feet are large. The intelligence of these men is good, the voice deep and the sexual organs fully developed. In fact, these men are only dwarfs because their limbs are so short.

The following is a more detailed account of each case —

No 1 — Cretin Radho, aged 30 years, Hindu



25 years of age, but has not progressed much. In both these cases the voice is peculiar, in No 2, it is falsetto and in No 3 small and childish. The external sexual organs are immature.

Nos 4 and 5, as will be seen from the illustrations, are quite different in appearance. They are cases of achondroplasia. According to Dr John Thomson, of Edinburgh, cases of this class have been erroneously included amongst those of "foetal rickets" and "sporadic cretinism." The head and trunk are those of fully grown men.

Was born at Faizabad in Oudh. Her father died of plague two years ago, her mother is an inmate of the Patiala poor-house, she had two brothers and a sister, who were in every way normal, but all died of plague, aged respectively 20, 16, and 10 years.

Her mother states that the patient was normal in size at birth, she grew slower than other children and ceased to grow altogether at the age of 16. There are no other dwarfs in the family and no history of goitre among the relations was obtained.

The patient is an idiot and quite unable to talk. She makes a few sounds which only her mother can interpret. The skin is harsh and dry and in places scaly. The abdomen is very prominent, in fact, she is pot-bellied. The breasts and external sexual organs are undeveloped. No indication of a thyroid can be felt in the neck. Her height is 2 feet 11½ inches and her weight 2 stone 11 lbs.

She is under treatment with thyroid extract in the poor-house, and the Superintendent reports that she seems to be better intellectually, but at her age any very great improvement is hardly to be expected.

No 2—Piyara Lal, aged 20 years, Hindu goldsmith.

Family history—Shows no dwarfs among the relations or immediate ancestors. There were three brothers, all of normal size.

Piyara Lal studied at school up to the 5th Primary class and states that he worked with boys of his own age. He is quite intelligent and seems quick at grasping new ideas.

He has a falsetto voice and the penis and scrotum are small and undeveloped. He has no hair on his face or pubes.

His complexion for a native is very fair. He runs fast and in every way seems to be an active, sharp-witted youth. Height 3 ft 3 ins. He is said to have ceased growing at the age of 10 years. His weight is 2 stone 11 lbs. The thyroid gland can be felt in the neck.

No 3—Sewa Singh, aged 28 years, Sikh, born in the Bikanir State. Is a member of a large family, having had four elder brothers and three elder sisters and seven younger sisters, but out of these only two younger sisters are alive now. All the others died before they grew up from various diseases. All are said to have been normal in stature and the two sisters now alive are tall women. There have been no dwarfs in the family hitherto.

Sewa Singh is only 3 ft 4½ ins in height and weighs 2 stone 11 lbs.

He enjoys good health, leads an active life and can play many games, besides being a good rider, a roller skater, and up to any amount of fun. He has a slight moustache and a little hair on the pubes, but his sexual organs are not fully developed. He is quick and active in his movements, but his voice is, as already stated, peculiar in character. The thyroid gland is present and there is no deformity or bending of bones.

No 4—Hamel Singh, aged 27 years, born in the Umballa District of the Punjab.

Family history—Has several brothers and sisters who are all normal in size. There are no other dwarfs like himself in the family. He grew till he was 12 years of age and then all growth stopped.

Height 3 ft 9 ins. Weight 5 stone 8 lbs. He has a normal trunk and head, but the arms and legs are very short, especially the upper arm and the thighs. There is some curving of the tibiae. The hands and feet are those of a normal man.

Together with the next case (No 4) he is in the service of Sardar Jewan Singh, C.S.I. He is quite intelligent and reads and writes a little English as well as Gurkhali and Urdu.

Hair on the face and pubes, and the sexual organs are normal.

He is strong and active. The thyroid gland is present.

No 5—Wazu Singh, aged 47 years, Sikh barber, born in the Patiala State.

Family history—No other members of his family have ever been known to be dwarfs like himself. He can give very little account of himself during his childhood, but his aunt who brought him up states that even after he had ceased to be a baby he was in the habit of walking on his hands and feet, and this was attributed to weakness and inability to stand upright.

He states that growth continued till he was two and twenty.

His height is 4 feet exactly and his weight 6 stone 3 lbs.

Wazu Singh's trunk is that of a fully grown man. It is well formed in every way. The arms and legs, however, are very short, and this shortness is especially evident in the humeri and femora. The hands are short and broad and the feet large.

His intelligence is normal.

There is a thyroid gland. The skin is normal and he has a good beard, and there is hair on all the normal parts of the body. The sexual organs are fully formed, but the man is not married.

For the detail notes of these cases I am indebted to Hospital Assistant Feroz-ud-din, Superintendent of the Patiala Poor-house, who very kindly collected the information for me and, I regret to say, has since died.

With reference to the cretin, little need be said here. The disease is well known and its pathology to a great measure worked out. It is, of course, due primarily to the absence of the internal secretion of the thyroid gland and is congenital. The treatment with thyroid extract during the years of childhood has led to brilliant, one may almost say startling results.

With regard to the cases of achondroplasia, I cannot do better than refer the reader to Dr. John Thomson's paper. He shows that the disease usually begins during intra-uterine life and that those affected usually die soon after birth. If they survive the first few months of life, they grow up dwarfs as our

examples show. They must not be confused with cases of rickets which the disease in some way resembles. Like rickets it affects the growing ends of the long bones with a special tendency to affect those which are laid down early in cartilage and ossify late. Hence the long bones of the upper and lower extremities are specially affected. The clavicles, on the other hand, are usually normal.

But I think in our group the cases 2 and 3 are the most interesting. They seem to be cases of arrested growth, pure and simple. Why this should take place and what conditions lead to it are at present a mystery. If we are to believe the history, they were normal children up to a certain time, presumably about the age of ten, and then all growth stopped and no further development took place unless it was that of the mind. In the hope that others may be able to throw more light on these cases, I have been induced to publish this account.

SOME POINTS IN THE DIAGNOSIS AND TREATMENT OF INTRA PELVIC EXTRA-UTERINE TUMOURS

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In the limited space at one's disposal it is impossible to give a detailed or differential diagnosis of these tumours, of which the characteristics are well known. This paper aims only at calling attention to a few practical points which may be as useful to those inexperienced in gynecological work, as they have been to the writer. The history of a case, as obtained from the patient or her friends, is not always reliable, especially as regards point or duration of time. It is generally fairly definite with reference to menstruation, its periodicity, amount of loss and degree of pain. One's main dependence, however, should be on bi-manual examination together with observation of the general aspect of the patient, presence or absence of tenderness of the pelvic organs or of peritonitis, the temperature and the pulse. A pelvic examination cannot be made satisfactorily unless the lower bowel and bladder of the patient are empty. A finger in the rectum will often help the diagnosis. Unless there is anything to contra-indicate this, the uterine sound should be passed, so that the size and position of the uterus may be estimated together with the relationship of the other organs to it. The consistency of the tumour, whether solid or cystic, and its degree of mobility are specially to be noted. When the pelvic organs are bound together by extensive adhesions, an accurate diagnosis is often made only after the abdomen has been opened. Von Piquet's cutaneous reaction is a valuable aid

when the question of tuberculosis arises. In this country other possible causes of fever besides suppuration should be remembered. When pus is suspected a blood count of the white corpuscles is advisable, though in old gonorrhoeal cases there is no leucocytosis. Dysmenorrhoea is due to so many causes that its presence is not a diagnostic sign of great value. Small ovarian cysts often do not cause any symptoms and in the majority of cases menstruation is unaffected. Amenorrhoea is not present unless the tissue of both ovaries is disorganized. No hard-and-fast line can be drawn between menorrhagia and metrorrhagia. There is no absolute standard of loss or of duration, and each case must be compared with its own average.

Free fluid in the abdomen with the presence of a tumour means either that the tumour is malignant or that it is cystic and has ruptured.

Retention cysts are usually small, and if ruptured, their contents are soon absorbed. A thin-walled parovarian cyst may occasionally be accidentally burst during examination or otherwise, but as the fluid it contains is non-irritating, untoward consequences do not often follow. As a general rule, when a pelvic tumour of new formation, whether solid or cystic, is present, a laparotomy and removal are the only treatment. An organ incapable of functioning which is increasing in size, though it may not be malignant, is a danger to the individual.

Pelvic cellulitis resulting in abscess is best opened per vaginam. In most cases these abscesses point in the vaginal vault, and are best evacuated by an incision made behind the cervix, either in the median line or slightly to its right or left, thus avoiding the dangerous area at the side of the cervix. The vessels may be recognized by their pulsation. The incision should be large enough to admit a finger, so that the abscess cavity can be thoroughly explored. The walls may be carefully scraped, the debris washed out and the cavity filled with gauze, which may be left in for two or three days. The drainage must be quite free and the incision kept open till all discharge has ceased. In cases of pyosalpinx opinions differ as to the best mode of treatment. Unless the abscess cavity is adherent to the pouch of Douglas and the pus is obviously making its way towards the vaginal vault, I prefer to open the abdomen. The exact position and relationships of the tubes, which in the majority of cases are both involved, can then be made out, and if it is considered safe to leave them, they can be opened and drained through the vagina. In this connection I may remark that one should never remove any pelvic organ from a woman, unless absolutely necessary. At least a portion of an ovary and the uterus should, if possible, be left. In this country especially, a young woman's domestic happi-

ness is largely dependent on a regular recurrence of the menstrual function

A ruptured ectopic gestation with continuous or intermittent hæmorrhage demands immediate operation, but it is really wonderful how a large pelvic hæmatocele can be entirely absorbed. This process, though, requires time and rest. In our Indian hospitals it is seldom possible to keep a young and active woman in bed for a lengthy period and a laparotomy with removal of the clot, etc., is often advisable. When an ectopic gestation is continuing, removal of the sac and its contents is indicated. This is comparatively easy in the earlier months, but later, there is considerable risk of dangerous hæmorrhage on detaching the placenta. Ligature of the ovarian and uterine arteries on the side of the gestation with stitching of the wall of the sac to the lower part of the abdominal incision, so that it may be excluded from the peritoneal cavity, and a careful and firm packing of its interior with gauze is, I think, the most satisfactory method of treatment when active hæmorrhage occurs and the sac cannot be removed entire. When the foetus is dead, the placental circulation gradually diminishes, so that detachment of the placenta is less difficult.

In preparing the abdomen for operation after the routine of soap and water, ether, alcohol and carbolic, to paint the exposed surface with tincture of iodine is a valuable and additional precaution against sepsis. Special attention should be paid to the folds of the umbilicus, when the abdomen has been opened, the intestines may be kept out of the way and the peritoneal cavity shut off from the pelvis, by the insertion of sterilized mattress pads, 8" x 8" made of non-absorbent wool enclosed in gauze. Bruising of the edges of the incision and consequent loss of vitality with delay in healing may be prevented by protecting them with gauze or lint wrung out of hot normal saline solution of which a plentiful supply, sterile and at a temperature of 103°—110° should be at hand. All organs brought outside the abdomen or exposed should be covered with gauze kept warm in this way with saline solution.

The presence of adhesions often increases the difficulties of a pelvic operation. Omental adhesions may be clamped, ligatured and cut. The planes of separation between adherent organs should be recognized, and this done, the organs may be freed with the fingers, the bleeding which occurs generally is not great and may be controlled by pressure with a hot swab. Adherent bowel should be separated with great care, so as not to destroy the peritoneal covering. If the tumour will not readily peel off, a portion should be left adherent rather than injury to or rupture of the bowel be risked. If the tumour is a cyst, the lining membrane left adherent, should be destroyed by touching with pure carbolic.

In all non septic cases, before closure of the abdomen, it is a good plan to pour in a quantity

of sterile normal saline solution (T 104°). If there has been a septic focus in the pelvis, local swabbing with the solution must suffice together with a copious rectal saline injection, given while the patient is still under the influence of the anæsthetic. This will greatly add to the comfort of the patient who is saved from the intense thirst and restlessness, which are apt to follow on abdominal operation.

Unless one can be absolutely sure of the sterility of catgut it is better to use silk for ligatures and peritoneum with silkworm gut for the muscles and sheaths. These can easily be sterilized by boiling. I have found that a running sub-cuticular stitch of silk is much the most satisfactory method of suturing the skin. By the use of this, stitch-abscesses are avoided and the scar is more slightly. An important point is to see that the wound is perfectly dry before closing it in this way.

The common intra-pelvic tumours, excluding those in connection with the uterus, may be classified as follows—

I Ovarian A Retention Cysts (a) Cysts of graafian follicle, (b) Cysts of Corpus Luteum, (c) Microcystic Disease of the Ovary

B Cysts of new Formation (a) Multilocular Ovarian Cysts, (b) Papilliferous Cysts, (c) Dermoid Cysts, (d) Patovarian Cysts

C Solid Tumours (a) Fibromata, (b) Sarcomata, (d) Carcinomata

D Inflammatory Cysts or Ovarian Abscesses due to (a) Tubercle, (b) other Infective organisms

E Ovarian Pregnancy (rare)

II Tubal A Hydrosalpinx

B Pyosalpinx (a) Gonorrhœal (b) Tubercular, (c) other Infective organisms

C Hæmatosalpinx (a) Tubal Mole, (b) Retained Menses (Atresia), (c) Reflux of menstrual fluid

D Carcinomata

III Pouch of Douglas (a) Hæmatocele from Tubal Abortion, (b) Secondary Abdominal gestation, the Primary having been Tubal or Ovarian

IV Connective Tissues (a) Pelvic Abscess (b) Interaligamentary Pregnancy, following Tubal Rupture

(c) Intraligamentary Hæmatocele

NOTES ON EIGHTY-FIVE CONSECUTIVE CASES OF STRANGULATED HERNIA

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In the *Indian Medical Gazette* of September 1905, Captain E O Thurston, FRCS, I.M.S., published a series of sixty-five cases of strangu-

lated hernia Forty-seven of these were operated on by him at the Medical College Hospital The eighty-five cases dealt with here, were all admitted at the same institution and were operated on by me between April 1907 and April 1910 Eighty-

two were inguinal and three were femoral herniae Most of the details of these eighty-five cases are given in the table below, which for convenience of comparison is arranged in much the same way as in Captain Thurston's paper

No	Race	Sex	Age	Side	Dura of Hernia	Dura of Strangula	Contents of Sac	Treatment	Result	REMARKS
1	M	M	38	R	7 yrs	8 hrs	Small gut and part of cecum and colon	Reduction and radical cure	C	The bowel was in good condition
2	H	M	55	R	10 "	7 "	Small gut	Ditto	C	
3	H	M	32	R	5 "	3 "	Ditto	Ditto	C	
4	H	M	55	R		18 "	Small gut and omentum	Reduction—doubtful piece left at ring with gauze drain	D	One small coil was in a doubtful condition and was treated as already mentioned All the gut was much congested Part of the omentum was removed The patient died the next day
5	M	M	40				Small gut	Reduction and radical cure	C	
6	H	F	40	L Femoral	1 yr	5 days	Small coil of small intestine	Removed of gangrenous coil	D	Patient had been vomiting for three days The coil of gut was found to be gangrenous and was bathed in pus The condition had been diagnosed outside as a case of inflamed glands
7	H	M	35	R		2 hrs	Small gut	Reduction and radical cure	C	
8	H	M	70	R	20 yrs		Small gut and omentum	Ditto	D	Old and debilitated man—died probably from paralysis of bowel
9	M	M	57	R	3 "		Cecum and small gut	Ditto	C	Adhesions between the meso-ecum and the cord had caused a second strangulation within the abdomen
10	H	M	50	L		10 hrs	Small gut	Bowel reduced and left at internal ring	D	Intestine much inflamed, several oz of red fluid
11	H	M	42	R	12 yrs	1 day	Small gut and small coil		C	Vomiting for four days, gut permanently constricted at neck of sac, but lumen quite patent
12	H	M	35	R	6	6 "	Coil of small gut and much clear fluid	Reduction and radical cure	C	No fluid appeared on opening the sac owing to the gut being slightly adherent
13	H	M	55	R	3 "		Small intestine	Ditto	C	2 inches of gut were firmly adherent to sac
14	H	M	40	L	12 "	4 days	Coils of small gut glued together	Ditto	C	Congenital sac containing imperfectly developed testis Coils had to be reduced in then glued and knicked condition
15	H	M	25	L	12 "	9 "	Coil of small gut and much omentum	Bowel reduced Omentum removed	C	Gut plum coloured, much fat in sac wall
16	H	M	55	R	1 yr	4 "	Ditto	Bowel reduced Omentum removed	C	Bowel plum coloured, fluid blood stained, omentum adherent to sac, nervous and fat patient
17	H	M	32	R	9 yrs	14 hrs	Small bowel and omentum, with hydrocele	Reduction after removal of omentum	C	Clubbed end of omentum had prevented complete reduction by taxis before admission Bowel in good condition
18	E	M	60	L	Many yrs	1	Small bowel	Reduction and radical cure—hydrocele tapped	C	
19	H	M	53	R	7 yrs	3 days	Small knuckle of small gut	Reduction and radical cure	C	Bowel in good condition
20	M	M	50	R	5 "	5 hrs	Cecum and Appendix part of Ileum	Reduction with difficulty and radical cure	C	Ileum congested, cecum in good condition Cord very adherent to sac
21	H	M	30				Small bowel and omentum	Reduction of bowel removal of omentum, and radical cure	C	Fluid blood stained, bowel in fair condition
22	M	M	50	R	10 yrs	3 days	Much adherent omentum	Removal of omentum and radical cure	C	Bowel and omentum dark, ring very tight Clots in the omentum due to attempts at reduction by taxis Fluid blood stained

No	Race	Sex	Age	Side	Duration of Hernia	Duration of Strangulum	Contents of Sac	Treatment	Result	Remarks
23	H	M	35	R	2 yrs	14 hrs	Small bowel and much omentum	Removal of omentum, reduction, and radical cure	C	
24	H	M	35	R	4 "	7 "	Small bowel and omentum	Ditto	C	Very tight constriction of the bowel at the summit of the Tunica Vaginalis
25	H	M	50	R	50 "	5 "	Small bowel	Reduction and radical cure	C	Mesentery very oedematous. Two tags of fat exactly resembling appendices epiploicae were attached to the small gut
26	H	M	40	R	15 "	3 "	Small gut and omentum	Reduction of bowel, removal of omentum and radical cure	C	Funicular hernia. Large hydrocele present
27	H	M	54	L	3 "	4 days	Ditto	Ditto	D	Patient very ill, 'fiscal' vomiting, gut in full condition
28	M	M	50	R	5 "	6 hrs	Small gut	Reduction and radical cure	C	Funicular hernia, mesentery very oedematous
29	M	M	60	R	3 "	2 "	Ditto	Ditto	C	Bowel in good condition, tissues friable
30	H	M	60	R	4 "	4 "	Ditto	Ditto	C	Feeble old man, congenital sac
31	H	M	55	L	7 "	4 "	4 ft of small gut	Ditto	C	Congenital hernia, with large neck
32	H	M	55	L	5 "	1 hr	Small gut	Ditto	C	Double hydrocele present
33	H	M	70	L	2 "	6 hrs	Ditto	Ditto	C	Funicular hernia, neck very tight
34	H	M	52	L			Ditto	Ditto	C	Large ring
35	H	F	55	L	4 yrs	4 days	Small gut	Reduction and radical cure	C	Patient very ill, vomiting feculent, sac in labium majus, on pulling on the Round Ligament, the Fallopian Tube appears
36	M	M	55	R	20 "	4 hrs	Ditto	Ditto	C	Much oedema of mesentery, bowel dusky, free hemorrhage from bowel next day
37	F	M	50	R	20 "	5 days	Small gut and large mass of omentum	Excision of omental mass, reduction of gut, and radical cure	D	Operation by McLeod for strangulation many years back. Large mass of tough dark omentum 'Fecal' vomiting
38	H	M	38	R	12 "	6 hrs	4 ft small gut—Reduction and radical cure and ecum	Ditto	C	Mesentery extremely oedematous but bowel in good condition. Hydrocele present
39	H	M	55	R	3 "	5 "	2 ft of dark small bowel	Ditto	C	Bowel dusky, passed a good deal of blood with stools the following day
40	M	M	50	R	5 "	8 "	Small gut	Ditto	C	Reduced by taxis six days before
41	H	M	40	R	4 "	2 "	3 ft small gut	Ditto	C	Bowel slightly wounded in opening sac. A loop of bowel found black inside belly
42	H	M	36	R	4 mths	13 "	Small gut	Ditto	C	Adhesions between gut and sac wall
43	H	M	60	R		4 "	Small gut with a good deal of clear fluid	Ditto	C	Peritoneal fluid found to be blood stained on reducing the bowel
44	M	M	75	L	2 yrs	6 "	Small gut	Ditto	C	Old asthmatic patient
45	H	M	70	R	25 "	48 "	Ditto	Ditto	D	Much vomiting, extreme distension. Died in spite of every attempt to empty the bowels
46	H	M	67	L	8 "	16 "	Ditto	Ditto	C	Patient in great agony, much vomiting
47	M	M	50	R		3 "	2 ft much congested small gut	Bowel left at ring. No attempt at radical cure	D	Bowel dark and congested, stasis not complete in mesentery, no necrotic areas. Died next day with paralysed bowel
48	H	M	55	R	1 yr		Small gut, adherent and with blood clots in the mesentery	Reduced with great difficulty	D	Bowel adherent, mesentery contains hemorrhages and clots. Patient died a month later with dysentery like symptoms
49	M	M	28	R	5 yrs	12 hrs	Small bowel and congested omentum	Reduction and radical cure	C	Sac very tense, bowel dusky
50	H	M	30	R	12	6 days	Chronically inflamed omentum	Excision and radical cure	C	Congenital sac, containing chronically inflamed and much thickened omentum

No	Race	Sex	Age	Side	Durn of Hernia	Durn of Strangulum	Contents of Sac	Treatment	Result	REMARKS
51	H	M	35	L	19 yrs	4 yrs	Small gut	Reduction and radical cure	C	No vomiting, some hiccough
52	M	M	58	R	4 "	10 hrs	Deeply congested loop of small gut	Bowel reduced and left opposite the internal ring	D	Bowel plum coloured, but retained polish, no necrotic areas. Died 16 hours after operation
53	E	F	39	L femoral	4 "	4 "	Small coil of small gut	Bowel replaced, radical cure	C	Strangulated once before two years ago. Sac very tense
54	H	M	60		20 "	5 "	3 ft of small gut	Reduction and radical cure	C	Strangulated one year ago and reduced by taxis
55	M	M	60	L	1 yr	20 "	2 ft of small and adherent omentum	Removal of omentum, reduction of gut, and radical cure	C	Abdomen much distended. Bowel plum coloured, and strangulated in two places at neck, and in sac by adherent Omentum
56	M	M	55	R	35 yrs	8 "	4 ft small bowel cecum and appendix and adherent omentum	Reduced with some difficulty. Omentum excised	D	Omentum much inflamed and adherent. Cecum distended and ulcerated on the surface. Much fluid present. Belly distended
57	H	M	40	L	10 "	28 "	3 ft small gut	Reduction and radical cure	C	Gut ruptured during reduction, owing to ulceration of inner coats, sutured. Local suppuration of wound occurred
58	H	M	48	R	10 "	30 "	4 ft small bowel cecum and appendix and some omentum	Ditto	C	Cecum distended, and reduced with difficulty. The cecum had no mesentery, but had 'landslipped' down from ilio fossa
59	H	M	34	R	7 mths	1 "	2 ft small gut	Reduction and radical cure	C	Patient in great agony. Strangulated five months ago, and reduced by taxis
60	M	M	50	R		3 "	Small bowel	Bowel reduced radical cure	C	
61	E	M	45	R femoral	1 mth		Knuckle of small gut and some omentum small bowel	Ditto	C	Bowel plum coloured and very tightly constricted, omentum adherent to sac
62	M	M	40	R				Bowel reduced sac not opened	D	Bowels could not be made to act, distension of belly, died on the 3rd day
63	H	M	30	R	3 mths	4 days	Ditto	Reduction and radical cure	C	Bowel oedematous and bluish. Vomiting for two days
64	H	M	45		Many yrs	24 hrs	Ganglionic bowel, with stinking fluid	Ganglionic part excised open ends left to drain	D	Offensive smell noticed before opening the sac. Fluid blackish, died next day. The vomiting was continuous
65	H	M	35	L	18 yrs	24 "	Small gut and omentum hydrocele present	Reduction and radical cure of hernia and hydrocele	C	Bowel adherent to omentum and sac, wounded when opening sac, and was stitched
66	H	M	42	R		4 "	6 inches of small bowel	Reduction and radical cure	C	Bowel in good condition, fluid clear
67	H	M	20	R	19 days		Small bowel and omentum	Reduction and radical cure	C	Bowel adherent, superficial hemorrhage due to attempts at taxis for 16 days
68	H	M	55	R		3 days	Small gut and clear fluid	Reduction and radical cure	C	
69	H	M	55	L	3 yrs	20 hrs	Large mass of omentum, and the transverse colon	Excision of omentum, reduction of bowel and radical cure	C	Enormous mass of omentum, and transverse colon, taxis tried twice under chloroform before admission. Hemorrhages and bloody fluid present, asthmatic patient
70	H	M	50	R	6 "		Small gut	Reduction and radical cure	C	
71	H	M	42	R		3 hrs	6 inches small gut	Ditto	C	Bowel oedematous, with ecchymoses
72	M	M	30	R	4 yrs		Small gut	Ditto	C	
73	M	M	40	R	6 "	6 hrs	Ditto	Ditto	C	Congenital hernia, suppuration occurred
74	M	M	34	R	10 "	10 "	Ditto	Ditto	C	
75	H	H	38	R	Many yrs	4 "	Congested omentum and small bowel	Removal of omentum reduction of bowel and radical cure	C	
76	E	M	32	R			Very fibrous omentum and large gut	Ditto	C	Fibrous omentum adherent to bowel and sac wall, colon inflamed
77	H	M	55	L		17 hrs	Small bowel	Reduction and radical cure	C	Gut much bruised hemorrhages beneath peritoneal coat. Suppuration delayed recovery

No	Race	Sex	Age	Side	Dura of Hernia	Dura of Strangula	Contents of Sac	Treatment	Result	REMARKS
78	H	M	40	R			Small bowel	Reduction and radical cure	C	
79	M	M	60	L	5 yrs	3 hrs	Ditto	Ditto	C	Bowel in good condition
80	H	M	50	R	9 "	4 "	Ditto	Ditto	C	No vomiting, bowel in good condition
81	E	M	42	L	Many yrs	6 "	Partially des- cended testi- cle and small bowel	Testicle remov- ed, gut reduc- ed and sac extirpated	C	Interstitial hernia, sac beneath aponeurosis of External Ob- lique Atrophied testicle in sac, bowel bruised by taxis
82	H	M	18	R		12 "	Omentum, and loop of small gut	Omentum re- moved and bowel reduced	C	Bowel dark and oedematous, oozed if picked Gauze drain inserted
86	H	M	38	L	4 yrs	3 "	Ditto	Ditto	C	Strangulation occurred during defecation
84	H	M	45	R		13 "	Transverse colon and omentum	Reduction and radical cure	D	Reduced with difficulty Did not get over paralysis of bowel
85	M	M	50	R	20 yrs	5 "	Cecum and ileum	Ditto	D	Much vomiting chronic cough, passed blood with first stools, suppuration died 12 days after operation

In this series of eighty-five cases, there were six in which the cæcum formed part of the contents of the hernial sac, *i.e.*, about 7 per cent as compared with 25.5 per cent in Captain Thurston's series. Even these figures, however, are much higher than the 2 per cent or 3 per cent given in most statistics of European cases, and go still further to prove that the more voluminous and freely-moveable cæcum of the Indian is more liable to stray into a hernial sac than the European cæcum. The five European or Eurasian cases in this series scarcely affect these figures. In more than half of these cæcal herniæ, the presence of the cæcum in the hernial sac was not due to any congenital tendency as far as could be judged, but was due to excessive mobility.

Omentum was present, with bowel, in over 29 per cent of the cases, this is rather below the average frequency. The omentum, like the bowel, had suffered in many cases from severe and ill-judged taxis before admission (*eg.*, Case 22).

The bowel was gangrenous in two cases, very doubtful in five cases, plum-coloured in four cases, dark blue or dusky in five cases, and superficially ulcerated in one case. It is interesting to note how these various cases fared. The two gangrenous cases (Cases No 6 and 64) were both treated by excision of the gangrenous parts, the open ends being left to form an artificial anus. Both were desperate cases and both died. The five very doubtful cases (Nos 4, 10, 47, 52, 82) were treated by leaving the doubtful coils opposite the internal ring, a gauze drain being placed in the wound. Four of these cases died. In one of the fatal cases a secondary laparotomy was done to relieve the paralysed bowel, but it was unavailing. In other cases of this sort I have done a resection of the doubtful bowel, but with no better success.

In Cases Nos 15, 16, 55, 61, the bowel was plum-coloured owing to extreme venous congestion, but was thought to be in a favourable condition for recovery. They were treated by reduction and radical cure, and all recovered. The same treatment was adopted in the cases with

dark or dusky bowel (Nos 22, 39, 41, 49, 82). The bowel in the most of these cases improved in colour at once when the constriction at the neck was relieved. They all recovered.

The sac in Case No 56 contained besides the cæcum, a considerable amount of small bowel and adherent omentum. The cæcum was ulcerated on its surface and was much distended. It was reduced with a good deal of difficulty. The next case No 57, illustrates a more usual form of ulceration, *viz.*, of the inner coats of the gut. The bowel ruptured while it was being reduced, although only moderate pressure was employed. It was then found that the giving way was due to ulceration of the mucous and submucous coats at the seat of the constriction. Local suppuration occurred, but the patient recovered.

Some other points of interest may be alluded to briefly. In two cases (Nos 9 and 41), on drawing down the bowel above the constriction, a second loop of strangulated bowel was discovered. This illustrates the importance of investigating the condition of the bowel immediately above the internal ring. In Case No 48, the patient died a month after the operation with symptoms resembling those of chronic dysentery, due almost certainly to secondary changes in the bowel which had been badly damaged. A curious condition was discovered in Case No 25, two small tags of fat, exactly resembling appendices epiploicæ were found attached to the small bowel.

Two very unusual cases which ought to be included in this series but have been omitted because the notes could not be found, are the following. — A middle-aged Hindu was admitted with an emphysematous swelling of the left scrotum. On incising this, liquid fæces and gas exuded but no sign of gut could be made out. When the wound was further investigated, it was found that a very small knuckle of small bowel had become strangulated and sloughed in the right inguinal canal. The fæcal matter thus liberated had tracked through the mesial septum, had reached

the left side and actually pointed at the bottom of the left scrotum. The sloughing tissue was removed, and an artificial anus established as a temporary measure, but the man died before any secondary operation could be carried out.

The second case was one of hernia of the vesical bladder. This condition is said to have been first discovered by Felix Platerus in 1641, but many cases have since been described. The patient was a man past middle life, who was admitted into hospital suffering from a right strangulated inguinal hernia. He was also suffering from diabetes and albuminuria. On opening the hernial sac, bowel and omentum was discovered. The bowel has been a good deal injured by attempts at taxis. A second sac was found adherent to the posterior wall of the hernial sac. It was thin-walled, but contained a certain amount of fat in its substance. Its real nature was in no way suggested by its appearance and it was opened, some straw-coloured fluid escaping which was not noticed to have any particular odour. A finger was introduced into the sac and it was found to lead to a cavity which was thought to be the general peritoneal cavity. The peritoneal covering of the sac extended over its anterior and over the lower two-thirds of its posterior surface. No urinary symptoms other than those of diabetes—and these were not marked—were complained of by the patient, and none were elicited after the operation by asking leading questions.

Both sacs were excised and their necks closed by purse-string sutures. The occurrence of very obvious hæmaturia during the following night, together with some vesical irritability, was the first sign which made it plain that the second sac had really been a protrusion of the bladder. The hæmaturia continued for some hours, but was never considerable. The patient's general condition was very bad and he died on the third day, the symptoms of obstruction never being quite relieved. A *post-mortem* examination was not allowed.

Cases have been recorded in which vesical herniæ occurred in the perinæum, in the gluteal region, in the obturator foramen and in a variety of other situations and although they have been sometimes cut down upon in these curious situations, there is seldom any mention that the vesical cavity was opened—a rather suggestive reticence. Macready states that among thirty-six vesical herniæ twenty-six were scrotal.

The total mortality of the cases which have been dealt with here amounts to fifteen, or about 17.6 per cent., eighty-two of the cases were inguinal herniæ, and three only were femoral herniæ. There are many other points of interest in this series, but most of the details can be gathered from the attached tables. For permission to publish the cases I am indebted to Major R. Bird, I.M.S., Major C. R. Stevens, I.M.S., and to Major F. O'Kineily, I.M.S., for whom I was acting as Resident Surgeon when these cases were admitted.

THREE UNUSUAL CASES OF BLACKWATER

By CHARLES ROPER,

B.A., M.B., B.C. (Cantab.),

Medical Officer, Bishnath, Assam.

THE somewhat unusual features presented by three consecutive cases of hæmoglobinuria occurring within four months in my practice are my excuse for adding to the much that has recently been published regarding "Blackwater Fever."

Each case needs to be considered on its own merits, but there are certain points in which the cases line up together which seem to me to be worthy of note—

I. They occurred within a short period in a district where blackwater fever is very rare.

II. Clinically the course was in none of them the usual one followed by blackwater fever—in fact they are suggestive of the phenomenon of blackwater occurring in the course of other morbid processes rather than of 'blackwater fever' as the clinical entity commonly spoken of.

III. All the cases were taking quinine when blackwater developed, in two of them the subsequent—not immediate—stoppage of quinine was followed by the re-appearance of blackwater, my strong leaning towards the administration of quinine in such cases will appear from the notes of the individual cases.

Regarding these three points in somewhat fuller detail—I. A case occurred in a European nurse in this district in 1903 or 1904 (case 32 in Christopher's and Bentley's "Record of cases of Blackwater Fever in Assam"), a second case was reported in the *Indian Medical Gazette* last year by my colleague Dr. F. C. McCombie in a planter who had previously had an attack in another district—the last attack followed the taking of gr. x of Quinine Hydrochloride and seems to have been a typical mild attack of malarial blackwater, these are the only published records of cases within my knowledge in this district which is not a highly malarious one. II. Regarding the clinical symptoms and the temperature associated with the onset of blackwater in the three cases, we get very marked variation, as follows—

Case A. Marked rigor and rise of temperature to 104° (for two days), to 103° on the third day, remitting to 99° or 100° each day—urine noted daily as 'high coloured,' 'dark,' 'like strong tea' respectively on the three days by the patient, medical attendant diagnosed "blackwater fever" on the fourth day—pain over liver at time of rigor only—vomiting present from the first.

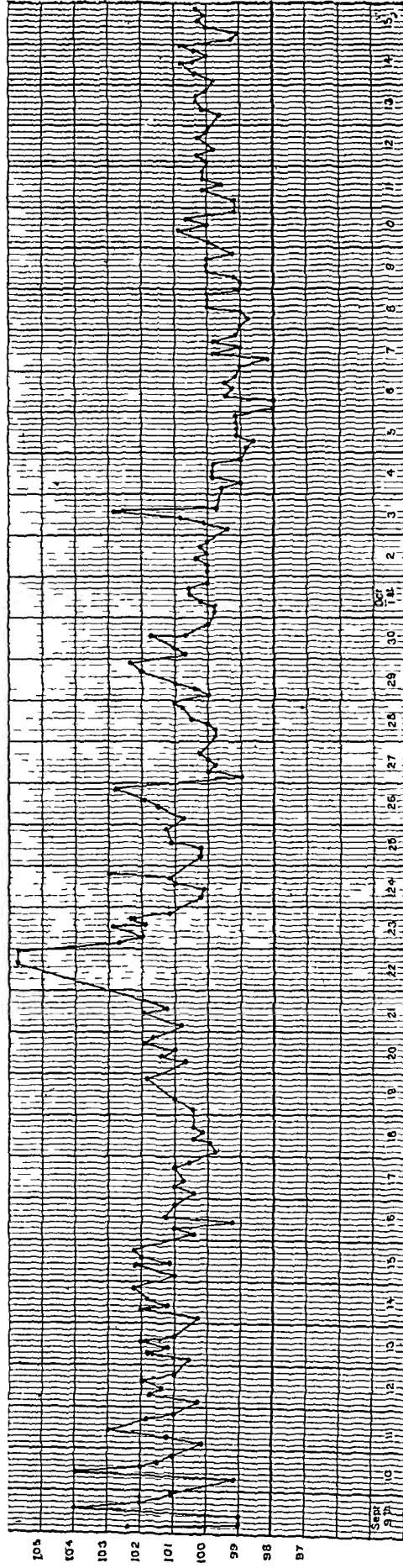
Case B. Slight rigor and rise of temperature to 100.6—intense vomiting and nausea—pain over liver and epigastrium blackwater passed twelve hours later—temperature normal within 36 hours, second attack, no definite rigor—intense general abdominal pain

THREE UNUSUAL CASES OF BLACK WATER

By CHARLES ROPER, B.A., M.B., B.C. (Cantab.),

Medical Officer, Bishnath Asram

CASE A

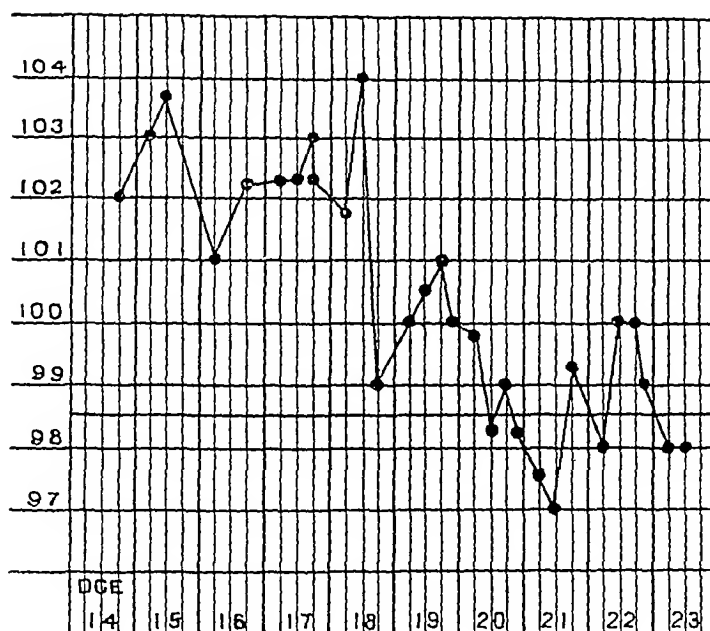


THREE UNUSUAL CASES OF BLACK WATER

By CHARLES ROPER, B A , M B , B C (Cantab),

Medical Officer, Dishnath, Assam

CASE C



—temperature 101.3, normal within a few hours—no vomiting

Case C No rigor noticed—pain in abdomen, both sides, upper zone—vomiting and restlessness—temperature 101°—103° for four preceding days, rose from 101.6° to 104° with the onset of the pain—blackwater passed a few hours later

Regarding the definite clinical entity of "Blackwater Fever" as a separate disease, it seems to me that the demarcation lines between conditions variously referred to as 'Malaria Hæmoglobinuria', 'Quinine Hæmoglobinuria', and 'Blackwater Fever' are in the main a matter of the observer's personal views, and now a-days are more generally all called blackwater fever. Now blackwater fever, so-called, is, as we consider it, only met with in persons who have been exposed to intense malaria—amongst these we find all grades of severity, on the other hand, in temperate climates and amongst persons who apparently have never been exposed to malarial infection, we meet with the condition known as "Paroxysmal Hæmoglobinuria," a condition that may come on with a rigor, a rise of temperature, abdominal pain, possibly vomiting, and some splenic enlargement, many of these cases are best treated by quinine, and may be of distinctly greater severity than many cases of blackwater fever, again there are a number of drugs and other toxic substances the administration of which may lead to hæmoglobinuria, preceded by abdominal pain, some pyrexia and vomiting—and with these mention may be made of the hæmoglobinuria sometimes met with in the course of other diseases such as Syphilis and Variola. In many of these conditions, I do not know whether it be so in all, we find that the underlying cause of hæmoglobinuria is one that up to a certain degree of intensity leads to erythrocytosis, *i.e.*, phagocytosis of erythrocytes without previous solution of the hæmoglobin in the plasma—beyond a certain degree of intensity the erythrocytosis is accompanied by a lycæmia, and consequent hæmoglobinuria, without at all wishing to look upon lycæmia merely as a sort of inevitable result of too excessive an erythrocytosis, it seems to me that as malaria is probably the most common cause of extensive erythrocytosis, possibly this might be a reason why the 'Blackwater Fever' of the tropics has come to be regarded rather as a separate disease than merely as a malarial hæmoglobinuria.

Regarding the administration of quinine during the progress of each case, this will appear in the notes—as it seems to me if "Blackwater Fever" is really a malarial hæmoglobinuria rather than a specific and separate disease a very wide prejudice against the administration of quinine in this condition may be removed, always granted, of course, that quinine should be administered only by the medical man in attendance, and with close observation of the results of each dose.

Looking now at my three cases individually, I was unfortunate in not seeing case A during the first few days, but I saw and examined a specimen of urine passed before I was called in, and quite agreed as to its nature, the condition of the patient however at the time I first saw her and during the time I had medical charge of her was such that I could not definitely diagnose the disease. Post-hæmoglobinuria fever (Daniels) occurred to me just at first—Enteric—Malaria—Tuberculosis—these and many other possibilities were continually in mind. One point calls for notice, the blood was free from malarial parasites during the time I was in attendance, I was, however, administering quinine all the time I had charge of the case, when the patient left this district to return to her home quinine was discontinued, and a few days later she again had hæmoglobinuria. The administration of quinine was, I believe, at once re-commenced and the blackwater cleared up, as will appear from the notes this case was one in which the patient might be considered to be intensely malarial.

Case B was a much simpler one, a malarial gastritis with an absence of a malarial temperature, but distinct periodicity of exacerbations of the symptoms—there was a slight irregular rise of temperature for two days when I first saw the case, then except for a few hours rise some two weeks later (a typical slight malarial paroxysm), no other rise except at the time of the two hæmoglobinuria paroxysms, and then a very slight one.

Case C a coolie woman was admitted to Hospital with fever and physical signs of a localised monolobar capillary bronchitis, the class of case which commonly develops into a lobar pneumonia of slight intensity.

NOTES ON CASES

Case A —Bengali lady, aged 16

Previous History — Four years in Assam, first 3 in a highly malarious district in Dibrang where she had frequent severe attacks of malaria, one especially severe attack of remittent fever lasting a month, last year was spent in this district where she had several slight attacks of fever lasting 3 or 4 days, and an attack of severe and obstinate vomiting, without pyrexia, in the spring, for which I was called in, all other measures had apparently failed, but the case readily yielded to hypodermic injections of Atropine Sulphate. Quinine prophylaxis said to have been 10 grains every second day.

History of present illness —The subjective symptoms were somewhat equivocal and variable, my notes when I first saw the case were —

Aspect quite good, no jaundice

Tongue clean and moist

Pulse regular, good tone, small, rate 118

Temperature 101°

Lungs and heart clear

Abdomen—normal in appearance,

flecid—slight general tenderness,

slight soft enlargement of spleen ;

no enlargement of liver

and except for increasing weakness, and subsequent disappearance of splenic enlargement the physical signs

showed little variation—the tongue varied a good deal and the bowels had to be kept open by purgatives or enemata—the urine was clear of albumin by Sept 29th, blood examined several times, and always negative regarding malarial parasites, on Oct 6th, specimen taken showed also “no Leishman Donovan—ratio red to white, corpuscles normal” All this time the patient had been having quinine hydrochlor gr v once or twice daily, either by mouth or hypodermically, on Oct 18th, the patient was taken on the River, quinine was then stopped, and I am told that on Oct 25th she had a rigor, pain on liver, green vomiting, her temperature rising to 105°, followed by appearance of blackwater, subsequently her temperature remained at 102°-103° for about 10 days and then gradually returned to normal, the patient has not yet returned to this district, but I am told that after her second attack she developed bed sores which however disappeared with a gradual improvement in her general condition and that she has now been for some time in good health.

Case B—European Planter, aged about 38

Previous History—Sixteen years in Assam, first 5 and last 6 in Bishnauth, intermediate 5 in Nowgong, where patient had “Blackwater Fever” in 1904 Practically no fever last few years—no regular quinine taken

History of present illness—When I was called I found patient with the typical symptoms of a very acute gastritis—as soon as his condition allowed a few days later I removed him to my own bungalow where he steadily improved for 6 or 7 days, but then remained stationary with continued gastric irritability, and suspecting the case to be malarial in origin, although the temperature had been normal after the first 2 or 3 days, my colleague Dr F C McCombie kindly came over and saw the case with me, the patient had that day Dec 12th, had a slight rigor and abdominal pain with intense vomiting and nausea, his temperature rising to 100.6—we agreed as to the nature of the condition and decided to give a course of quinine bi-hydrochloride by hypodermic administration I gave a hypodermic thrice evening of gr vii—the patient had a fair night, but at 2 A.M., passed typical blackwater, this continued for 2 days, the second day the condition causing me much anxiety owing to restlessness, scanty urine, and slight vomiting—however there was marked improvement towards evening, and intravenous transfusion was not called for During this period the principal treatment consisted of very small quantities of nourishment by mouth, nutrient enemata, rectal saline injections and quinine bi hydrochlor hypodermically gr v twice daily On the evening of Dec 14th, the urine was clearing, and was free on Dec 17th, I discontinued quinine on 25th, and on 28th took some blood slides which Dr. McCombie examined with me, a few tertian parasites were found, the temperature had been normal since December 12th but on December 30th rose to 101.3 with restlessness and great abdominal pain in sub sternal and epigastric regions, and later patient passed black water—this soon cleared, however, the patient's condition caused little anxiety and on January 5th, I was able to take him down the River to Calcutta, and he went for a trip to Australia, he tells me that he steadily picked up and had no symptoms of any sort except one day's fever in Colombo on his way out Subsequent history good

Case C—Garden coolie, female, Guri jat, aged 35

Previous History—One year in Assam, in this district, slight intermitter fever 3 or 4 times only necessitating out patient leave for a day or two Quinine prophylaxis gr. x bi weekly during previous July to November

History of present illness—Admitted to Hospital on December 14th with suspected Pneumonia, beyond seeming somewhat comatose the case presented no special features, a purge was given and quinine gr x in solution 3 times daily—the rise on December 18th, was accompanied by bilious vomiting and abdominal pain, previous to which urine passed was noted to be high coloured—later the patient passed blackwater which

soon cleared and the case terminated without further points of interest except that slight jaundice was noticeable on the 4th day

AN UNUSUAL COMPLICATION OF LABOUR

By D MUNRO,

CAPT, I M S,

Civil Surgeon, Serampore

ON the 4th April 1910, at about 3 P.M., I and Dr. Nomi Lal Bhattacharji, L.M.S., of Serampore, received an urgent call to attend a woman in a village some 16 miles away The woman was said to be in labour We were told that the membranes had ruptured at 7 A.M., the head born at 10 A.M., and that after the birth of the head labour had made no further progress, that chloroform had been given and efforts made to extract the child but without avail, and that the doctor in attendance had diagnosed the case as locked twins On our arrival we found the patient to be a young, healthy and well-formed Bengali woman, the wife of a respectable and well-to-do zemindar This was her fourth pregnancy, the previous three having been quite normal, and she was the mother of three healthy children This pregnancy had advanced uneventfully to full-term, labour had set in and progressed naturally up to the point referred to above Protruding from the vulva was an apparently healthy full-term foetus, head, shoulders and body as far as the lower end of the sternum also a foot which had been brought down by the doctor in attendance in his attempts at extraction The umbilical cord had been torn from its attachment at the navel and the torn end was also protruding from the vulva The child was presenting with its back to the front, i.e., facing directly backwards between the mother's legs

On external examination, the uterus was found to reach to just above the umbilicus It was in a state of tonic contraction Bandl's ring was very clearly marked and high up

On palpation no foetal parts could be felt nor any irregularity of surface The uterus was uniformly ovoid with its long axis in the long axis of the woman's body On auscultation no foetal heart sounds could be heard On internal examination the left leg of the foetus which had been already brought down, could be felt in the vagina The margins of the os could not be felt The pelvic inlet seemed filled by a fleshy mass between which and the brim in the right posterior quadrant the right leg seemed caught The mass felt elastic and yielded somewhat to the fingers I thought it must be a foetal head covered by membranes or a large soft caput

The woman was exhausted but her pulse was fairly good She was put under chloroform and I introduced my whole hand At first I tried

to push up what I thought was the head of a twin child, and at the same time exerted traction on the half-born child. This failed—the mass moved, but nothing could be extracted further. I was afraid of rupture of the uterus and did not like to use much force. I then tried to pass my hand into the uterus alongside the mass and get hold of the foot of the leg wanted to bring down. I managed to insinuate my hand alongside the mass into the uterus, as it had not properly engaged the pelvic brim. In doing this I noticed that it did not feel in the least like a foetal head—not nearly hard enough. I felt another foot, but I could not move it.

We then decided to perforate the mass. This was done with difficulty as the mass was so high up and also yielded before the point of the perforator. I do not know now whether I perforated the mass with the perforator or not, but at any rate whilst I was trying to fix the mass something burst, and about two pints of clear fluid came out of the vagina (we had previously emptied the bladder).

On withdrawing the perforator, the hand could be passed fairly easily into the uterus. I felt a foot. On exerting gentle traction the foot came away in my hand. I brought it out and found it to be a stunted malformed leg. There were eight toes on the foot. Traction on the half-born child now brought it out a little further but it was still stuck. Putting my hand up again along the body and right leg of the child, I got hold of the foot I wanted and brought it down along with the leg. At the same time I could feel other limbs and extremities in the uterus. There seemed now no reason for the child being stuck, but still I could not deliver it, until I felt that it was attached by its breech to what remained in the uterus. The attachment was partly bony, I broke through it and delivered the child. I was then able to empty the uterus piecemeal of (1) a half empty cyst covered with skin. This cyst was about the same size as the placenta which was afterwards taken out, (2) four more malformed legs. There was a large pouch in the posterior wall of the uterus in which the cyst and legs had rested. There was no second child and nothing remained in the uterus but a placenta and membranes which I removed manually.

On examining what had been taken out of the uterus a very curious condition of things was seen.

A cystic tumour about twice the size of a foetal head had been attached between the legs of the foetus, the attachment having been torn away when I delivered the child. The base of attachment corresponded to what should have been the perineum and to the coccyx and sacrum. The tumour was covered by ordinary skin continuous with that over the abdomen and buttocks of the foetus. No anal opening could be discovered in the foetus. Its pelvic cavity communicated directly with

the cavity of the tumour. In front of the base of attachment of the tumour we thought we could detect a rudimentary vulva with a small blind urethra. There were several daughter-cysts in the walls internally and running round the internal walls were loops of the intestine. Of these loops some were rudimentary and blind. They were attached to the inner wall of the cyst by mesentery. The rectum of the foetus was in this way continuous with a blind loop in the wall. The spinal column of the foetus did not end at the coccyx but was continued on into a bony mass which seemed like a rudimentary pelvis. From this mass five stunted twisted legs had projected forming a star-shaped figure. Of these one foot had eight toes, one six toes, one four toes, one three toes, and one one toe. They were not all of the same size and were at different stages of development and perfection. Two of them were very rudimentary, containing some rudimentary bone, but joined on to the central mass by skin and fibrous tissue. Another, the one which came off in my hand, was only joined on by skin and fibrous tissue. Two of the legs had articulations with the rudimentary pelvis, and did not hang loose like the others. I dissected out from one a fairly well-formed tibia with ossified shaft and upper and lower cartilaginous epiphyses. With regard to the after-history of the case, the woman did better than could be expected. There had been at no time in the labour any hæmorrhage to speak of. We gave however a vaporole of émetine hypodermically. An antiseptic intra-uterine douche was given and the uterus cleared out as much as possible. The pouch in the posterior wall of the uterus was very well marked. When we left her, the uterus was well contracted and her general condition was good. Reports reached us from time to time she was getting fever, but the last report of her condition, received three weeks after the event, was that she was walking about and free from fever and discharge.

As for the specimen, I have it in my possession, and intend to present it to the Calcutta Medical College Museum.

TWO CASES OF SNAKE-POISONING— RECOVERY

By F C FRASER, M D,

CAPTAIN, I M S

THE following two cases of snake-bite are of exceptional interest as both bites were treated with Pot Permang locally, Antivenine intravenously and Calcium Chloride and Adrenalin by the mouth, and although the bites were inflicted by reptiles of different genus, both patients recovered. The patients were prisoners confined in Hyderabad Central Prison, Sind.

Prisoner C B, male, aged, 35 years.

Patient stated he placed his hand on a snake, in the dark, felt it wriggle beneath him and inflict a sharp bite on his fore-finger, right hand,

He was seen shortly afterwards by the Sub-Assistant Surgeon who noticed bleeding points on the finger. He freely lanced the wound and rubbed in crystals of Potassium Permanganate. Seen by me shortly afterwards, he exhibited hurried respirations and complained of giddiness. I injected 20 cc Antivenine immediately into the right basilic vein, the full dose was not given as there was only one tube in stock. Calcium Chloride grs xv and Adrenalin m x were given every four hours. These two latter drugs were given as patient was beginning to ooze blood at the gums. Patient was kept quiet in bed, told not to be afraid as he would recover. No stimulants were given. There was continued bleeding at the wound and the bleeding from the gums increased, but on giving him a mouth wash of alum, this stopped after 24 hours. There was considerable œdema of the hand and patient complained of pain up to as far as the shoulder. The œdema and pain passed off slowly and patient was discharged cured at the end of a week.

He was admitted again a week later complaining of weakness and an eruption present on both hands and feet. It was of an urticarial conditions presenting small areas of solid œdema, some of which broke down into ulceration. I have not seen anything quite like this rash before, but as prisoner was employed in dyeing, I think it may possibly have been only an accidental complication. Cleansing the parts and applying lotions soon resulted in a cure.

The snake in this instance was not secured at the time but two days later after a prolonged search in the veld where prisoner was bitten a largeish krait—*Bungarus caeruleus*—was killed. I was of opinion that the bite had been inflicted by an Echis, but on further questioning prisoner elicited the fact that it was a large snake—in fact too large to have been an Echis, which here in Hyderabad never grow more than ten inches in length—the krait killed was a little over double this length. I was further misled by the rarity of kraits in Hyderabad, out of a large number of snakes sent to me for identification this is the only *Bungarus* met with.

Prisoner N R, male, aged 31 years

Patient, who is a bungai, was engaged in gathering up rubbish with his hands when he accidentally included a small snake amongst some leaves and grass. The snake fastened on to his finger and was promptly shaken off and killed. I identified it as an Echis carinatus, a very common snake in these parts. The Sub-Assistant Surgeon who first saw the man, made free incisions into the bite which he says was bleeding freely and rubbed in crystals of Pot Permang. Some delay occurred in obtaining Antivenine but eventually 40 cc was obtained from the Civil Hospital and I at once injected 35 cc into the right basilic vein and the remainder on the proximal side of the bite.

Patient was losing large quantities of blood from the gums and nose and the wound oozed continually. He complained of faintness and pain in the hand. The pulse was weak and the respirations hurried. Calcium Chloride grs. xv and Adrenalin grs x were given every four hours. A mouth wash and gargle of strong Tinct Perchlor Ferru was also given to stay the bleeding but had little effect.

Oozing of blood continued for seven days and considerably over two pints of blood must have been lost. I saw a chatti nearly full to the brim and noticed that it exhibited no tendency to clot. It was, of course, mixed with sputum as the man cleared his mouth about twice a minute. There was marked œdema of the whole hand spreading some way up the arm. It was not an ordinary œdema, being very fluid and fluctuating, indeed when the part was tapped with the tips of the fingers, a distinct wave could be seen to pass over the swollen area, whether this was due to the Pot Permang or the venine is an interesting point, but I should think the latter as Pot Permang causes clotting, whereas venine probably has a fibrolytic action and may tend to liquefy the connective tissues around the bite. The bleeding ceased after a week and the œdema passed off, patient ultimately recovering although there was a severe grade of anaemia for over two weeks.

Incidentally I may mention that I met with some difficulty though not having a syringe large enough to hold the large quantity of 40 cc antivenine. I overcame this by using two needles one of which I left in the vein and the other used for drawing up the Antivenine from the tube. Several refills were thus accomplished without making a fresh puncture. Some little time was lost in the doing but as there was little fear of blood clotting in the needle in the man's condition, no harm resulted.

A FATAL CASE OF SNAKE BITE BY ECHIS CARINATA

By C H REINHOLD,

CAPTAIN, I M S,

58th Rifles, F F, Fort Lockhart

THE following case is, I think, worthy of record on account of two unusual features, viz the rapidity with which death supervened in spite of treatment, and the occurrence of a large retro-peritoneal hæmorrhage as a result of the poisoning.

The former feature was obviously dependant on the latter, so it is chiefly the internal hæmorrhage which makes the case interesting, I do not know that this symptom has been previously recorded, but it may logically be

expected to occur in any case of profound viperine toxæmia

At Hangu, on 13th July, at 7 A.M., dooly bearer R, æt about 40, while removing a dooly from a tent, was bitten by a snake on the outer side of the fore-arm, 3 inches above the wrist

He at once went to the hospital assistant and told him what had happened. The hospital assistant with commendable promptitude applied a ligature immediately above the site of the tooth marks, from which oozed two minute drops of blood, he then incised across the tooth marks and removed semi-circular flaps of skin to the size of an eight-anna piece induced free bleeding and rubbed in crystals of permanganate of potash

By this time the snake had been killed by some sepoy, and the hospital assistant went to see it, recognising it as a poisonous one, he applied a further ligature round the fleshy part of the fore-arm of the man

Since the hospital at Hangu is only a camp one, the patient was removed in a cart to the civil dispensary, and here at 9 A.M. rubber ligatures, above and below the elbow, were substituted for the cloth bandages, and potassium permanganate re-applied

No anti-venime being available, it was not used

The wound in the arm continued to ooze all day, and the dressings were frequently changed, no constitutional symptoms supervened during the day, but the patient complained of severe pain in the arm, which was attributed to the ligatures, however, he managed to get some sleep

At 5 P.M. there was considerable swelling of the arm, and severe pain complained of as the general condition of the man remained satisfactory, it was decided to remove the ligatures

At 7 P.M. the patient passed a diarrhoeic motion in bed, but got up later to pass water and clean himself. There was no blood in the motion or urine, and active bleeding had ceased from the wound in the arm, the dressing being merely stained

At 10 P.M. the patient complained of pain in the abdomen and was given aromatic spirits of ammonia and cinnamon water

At midnight the pain in the abdomen was worse, patient described it as a burning sensation. There was no vomiting

At 2 A.M. the patient passed a diarrhoeic motion (no blood) going out, with assistance, to the latrine 20 yards away, for the purpose. Patient had no sleep during the night, and was restless, complaining continually of the abdominal pain

July 14th, 7 A.M., the wound was dressed, there was no fresh bleeding, the patient was quite conscious, though the pulse was impercep-

tible at the wrist. It was not noticed that he was blanched or cold. He complained of thirst and drank *sherbet*

There was no sign of any paralyses

About an hour before death he became very restless and ceased to recognise his surroundings

He died at 10 A.M., 27 hours after the accident. I saw the case first an hour after death, rigor mortis had not yet set in. There was some swelling of the left arm, and blisters above and below the elbow where the rubber ligatures had been applied

A *post-mortem* examination was made at 6 P.M., 8 hours after death

Rigor mortis was well established

The wound in the arm was circular and about the size of an eight-anna piece, it had penetrated well into the connective tissue but was not deeper. There was no sanguous discharge from the wound though the blood stains on the dressing were watery

Lungs—Emphysematous and anæmic, old pleuritic adhesions on the left side

Heart—Left ventricle strongly contracted and empty, right ventricle engorged with blood

The *blood* was quite fluid and notably light coloured, there was no trace of clotting

Abdomen—No peritonitis or petechial hæmorrhages, the coils of intestine were distended with gas, and the omentum was anæmic

The *bladder* was strongly contracted and the urine not blood stained

Liver—Normal, anæmic

Kidneys—Normal, anæmic—the capsule stripped easily

Spleen—Normal, small

An enormous retro-peritoneal hæmorrhage distended the left side of the abdominal cavity extending from the diaphragm to the brim of the pelvis, but not crossing the middle line. The blood forming the hæmorrhage was dark, and had formed a curiously tough stringy clot which was not easily broken up. It was impossible to discover what vessel was the source of the bleeding, the arterial system generally was not atheromatous and the vessels of the kidney did not show any gross degenerative changes

I satisfied myself that the hæmorrhage had no connection with the spleen or kidney (enquiries as to whether the man had fallen or sustained any injury subsequent to the snake-bite produced no evidence of trauma).

I examined the snake which bit this man and identified it as an *Echis Carinata*, 12 inches long, this has subsequently been kindly confirmed for me by the Bombay Natural History Society

The interest of the case lies in the *post-mortem* revelations. In the literature at my disposal, I can find no record of internal hæmorrhage having been shown to occur.

The clinical pictures of two fatal cases on record (*Journal of Bombay Nat Hist Soc*, Vol xix, p 266, and *I M G*, April 1907), suggest internal hæmorrhage, and in the latter (Hust's case) it was suspected, but no *post-mortem* examination was made in either case, so they remain not proven. In Allbutt's *System*, Martin and Lamb record a case of Echis bite fatal in 25 hours, with symptoms very like those in my case, but in by far the majority of cases death is delayed 6 or 7 days, and hæmorrhage is external.

As regards treatment applied in the case under consideration. The circumstances under which the accident happened were ideal for a successful issue. The man was actually bitten in the vicinity of the hospital, a ligature was applied within 5 minutes of the injury and incision and the application of permanganate of potash immediately after.

In the light of the result it is to be regretted that the incisions were not deeper and wider, that a solution of permanganate of potash was not used instead of the crystals, and that Wall's recommendation of dissecting in the direction of the venous and lymphatic return, was not carried out. In the matter of the time which should be allowed to elapse before the removal of the ligatures, this will largely depend on the activity with which local treatment at the site of the puncture has been applied. If the latter has been thoroughly done, there should be no necessity to keep on the ligatures until danger of gangrene threatens. In the laboratory 20 minutes has been found sufficient to avert a fatal issue in rabbits (Martin and Lamb).

In my case, the arm was ligated for 9 hours, and my hospital assistant was placed in a quandary, whether to risk gangrene, or the absorption of any venom which might not have been neutralized by the local treatment. As the case turned out, it is logical to conclude that, very little of a large dose of venom had been reached by the incisions and permanganate, but that absorption into the system had been completely stayed by the ligatures above the site of the puncture.

The rapidity with which symptoms appeared after the removal of the ligatures, suggests also that the poison was injected intravenously.

If before the ligatures had been removed, a further dissection at the site of puncture had been carried out under chloroform, and a strong solution of permanganate of potash freely used, it might reasonably have been hoped that a fatal result would have been averted, and with this reflection I will close an already too long note of the case.

A CASE OF POISONING BY EUCALYPTUS OIL.

By G G JOLLY,

LIEUT, I M S,

Quetta

SOME readers of the Gazette may have seen notes of several cases of poisoning by Eucalyptus oil recorded in recent numbers of the *British Medical Journal**. The case related here is one of poisoning, following the administration of Eucalyptus oil and chloroform in the treatment of ankylostomiasis.

The patient, a Hazara, was admitted to hospital suffering from anæmia and dyspepsia. On examination of his blood a pronounced eosinophilia was detected, and subsequent examination of the stools showed the presence of the ova of ankylostoma duodenale in considerable numbers.

Patient was treated according to Sir Patrick Manson's prescription in the latest edition of his "*Tropical Diseases*". An aperient of magnesium sulphate was given at night, and on the following morning oil of Eucalyptus, 30 minims, chloroform, 45 minims, and castor oil 10 drachms, one-half being given at 7 A.M. and the second half at 7-30 A.M.

Patient kept well till 9-30 A.M. when he stated that he felt weak and giddy. At 10 A.M. when I saw him he was in a state of collapse. He complained of great languor and giddiness, and of difficulty in taking breath, also of pain all over the body, especially marked in the stomach, head and urethra. Respiration was shallow and laboured, pulse weak, irregular, and of low pressure, pupils were rather dilated and the conjunctival reflex diminished. Breath and skin smelt strongly of Eucalyptus. There was no vomiting and he passed no urine or feces. A mustard plaster was applied over the heart and a hypodermic injection of strychnine administered.

At 11 A.M. patient was no better and the extremities were cold. He felt very ill and dull and he was going to die. Atropine sulphate $\frac{1}{100}$ gr. was given hypodermically and hot bottles applied to the extremities, and shortly after he passed a copious motion. An enema was then given followed by two other motions. Patient became much better, pulse and respiration improved and he made a rapid recovery. On examination the motions were found to be swarming with ankylostoma worms.

The symptoms of poisoning appear to me to be due mainly to the Eucalyptus oil. Absence of vomiting may be explained by the anæsthetic action of the chloroform well diluted. Cure was complete, but I would hesitate to adopt the same treatment in another case.

* *British Medical Journal*, January 29th and March 5th, 1910.

Indian Medical Gazette.

NOVEMBER

THE MEDICAL SERVICE IN CAMPAIGNS *

THE elegant little volume by Major Stiaub, of the U S Army Medical Department, includes the substance of a series of lectures delivered at the Medical Camp of Instruction held at Annetam, Md, in July 1909, and is primarily intended for Medical Officers of the Regular Army and of the National Guard

Since the Spanish-American War the Military Establishment of the United States has been largely improved and reorganised, and the Medical Department has shared in this improvement. Major Stiaub rightly points out that the Army Medical Officer is not simply a practitioner of medicine, his efficiency depends rather upon his ability in preventing disease, and so relieving the fighting line of its encumbrance of sick and wounded

Chapter II deals with preparation for field service and military 'orders' are first dealt with. Orders are classified into 'ordinary orders,' 'orders,' and 'field orders,' and these are amply illustrated in the succeeding pages. Another portion of this chapter is devoted to map reading, a knowledge of which is of importance to the Medical Officer in the field, and we can commend this chapter to our military readers. The chapter on weapons and on the range and efficiency of modern firearms is as interesting as it is useful.

The chapter on casualties is of special interest and a valuable page of statistics from various Campaigns is given. It appears that the loss in individual battles in the Russo-Japanese War was undoubtedly greater than in previous wars, being 16 to 20 per cent as against 7 per cent in the Franco-Prussian Campaign of 1870-71. At Sedan, for example, the percentage killed was under 1 per cent on the German side and 2.7 on the French side, the rates of killed to wounded being 1—3.9 German and 1—4.6 on the French side. In the battle of Mukden, 35 years later, the Russian loss was 2.9 per cent killed and 16 per cent wounded, and on the

Japanese side 4 per cent killed and 17 per cent wounded, the winners having lost more than the losers. It would appear, therefore, says Major Stiaub, "that the battles in the Far East were "bloody" not only because of their longer duration (days or even weeks), but also on account of the high efficiency of the weapons used."

Nevertheless competent observers are of opinion that the proportion of casualties in future wars will not differ materially from those sustained in earlier wars, and deductions as regards the amount of medical aid required may still be safely guided by the experience of the Franco-Prussian and the American Civil War a few years earlier. Great disasters excluded, the maximum casualties will be about as follows —

For an Army Corps (about 40,000 men), 20 to 25 per cent

For an infantry division (about 20,000 men) 25 to 30 per cent

For a regiment (about 1,500 men), 40 to 60 per cent

For working purposes the wounded in battle may be apportioned into four categories —

(1) The severely wounded that cannot stand transportation, including injuries accompanied by severe shock. These should be kept in shelter near the place of injury under the protection of the General Convention, (2) the less severely injured that require transportation by litter or ambulance, and (3) the wounded that are able to walk. The following calculation is made —

20 per cent killed

8 " non transportable

32 " needing transport { sitting up 20 per cent
recumbent 12 " }

28 " able to walk to dressing station

We have not space to enter into Major Stiaub's remarks on casualties from disease. The section on transportation is of great value to the Military Officer, and the calculation of considerable interest.

We can only refer to the heading of the further chapters in this interesting volume. That on organisation and especially medical department organisation is excellent. The chapter on administration treats of four subjects: (1) sanitation, (2) care of sick and of wounded, (3) providing hospital supplies, (4) collection and evacuation of the sick and wounded. Chapter V on battle dispositions is admirable, and shows how the use of improved firearms had modified tactics and consequently the sanitary service in battle.

* Medical Service in Campaign. A Handbook for Medical Officers in the Field by Major P. F. Stiaub, Medical Corps of United States Army. Illustrated. Philadelphia: P. Blakiston, 1910. (Price 1½ dollars.)

The chapter on regimental service and aid stations is equally practical, and the remarks on first aid dressings are especially to be noted. Other chapters deal in detail with dressing stations and field hospitals, stations for the slightly wounded and on the lines of communication.

We can strongly recommend this handsome little volume, in its 160 pages it contains a vast amount of most useful facts and comments. We know of no other book in the English language which is so instructive or useful to the Military Medical Officer.

This book should be circulated to all station and regimental hospitals in India, and would form an admirable basis for promotion examinations.

Current Topics.

"PALUDISM"

UNDER the above title we welcome a new publication devoted to the study of Malaria in India. It will be the organ of the Central Committee for the study of Malaria in India, which, as is known, is composed of Lieutenant-Colonel J. W. T. Leslie, I.M.S., Lieutenant Colonel D. Semple, R.A.M.C. (ret'd), Major S. P. James, I.M.S., and Captain P. R. Christophers, I.M.S.

The first issue dated July 1910, consists of 53 pages, and contains an editorial note, giving details of the work of the Malaria Committee which runs to 9 pages.

The rest of the issue consists of two appendices on quinine and on questions to which answers are desired by the Committee. Then follows a note on the work done at Amritsar Laboratory which we dealt with in a previous issue. Captain Christophers' paper, on suggestions for the use of available statistics for the study of Malaria in India, is worthy of study. We commend especially his instructions for estimating the degree of enlargement of the spleen. Major James has a Note on a Mosquito, a new Anopheline to be called *Christophersia Halli* (*nov. gen. et sp.*), whose habitat is in Sylhet, and which was first discovered by Lieutenant-Colonel Hall, I.M.S.

We welcome this new publication. It is well to know that reports on Malaria will now promptly see the light and not be pigeonholed for use in the Annual Report.

THE ORANGE-RED CLOTHING TEST

The following is a full report on the value of orange-red clothing which we have already referred to, made by the Tropical Diseases Board, U.S. Army.

During the quarter the tests of the orange red under clothing, which have been underway for over a year, were completed and the work of compiling the great

amount of data obtained from these observations was carried out by Captain James L. Philen, Medical Corps, who has submitted an extensive special report on the subject. A summary of the work is as follows.

The test of the orange red underwear and hat linings was undertaken as a result of recommendations by the Inspector General of the Army. The garments were prepared at the Philadelphia depot of the Quartermaster Department and were of a deep orange red color. The shirts averaged $1\frac{1}{5}$ of an ounce heavier than the white ones worn by the controls. The orange red drawers were of a different type from the white ones and averaged $1\frac{1}{5}$ ounces heavier. The garments faded materially on washing, especially if exposed to the sun while drying. However, the inner surface retained much of the dye and it is not thought that the fading was so great as to destroy the value of the tests.

It had been intended to equip 1,000 men with the special underwear and an equal number of controls with white, but, owing to inability to fit sufficient men from the 6,000 suits furnished, it was found impossible to equip over 500 with the orange red garments. The tests were carried out under the immediate supervision of the following medical officers at the posts shown after their names:

Major C. C. Collins, Fort McKinley, Rizal, P. I.
1st Lieut. C. L. McKinney, Camp Stotsenburg, P. I.
1st Lieut. H. A. Philips, Camp Juanman, Guimaras, P. I.
1st Lieut. C. J. Cowles, Jr., Zamboanga, Mindanao, P. I.

The men wearing the special clothing and the controls wearing the white were taken from the same companies, which were equally divided in such a way as to make the two groups as nearly as possible equal in physique. Those with long tropical service or who were exceptionally weak were excluded.

The experiment was kept up during the calendar year of 1909 and a summary of the results are as follows:

(1) *Weight*—There was a loss of weight during the year in both groups of men more marked in the mid year (hot season) weighings, a certain amount of the mid year loss being made up by the end of December. The loss of weight at the mid year observations was greater by an average of one pound for the orange red group men than for the control group. At the end of the period of observation there was no difference of weight in the two groups.

(2) *Blood Examinations*—The result in both groups agreed in character if not in degree with those of Captain Wickham, Medical Corps showing an increase above normal in the number of red cells and a decrease in the percentage of hemoglobin, the hemoglobin index being necessarily still more diminished. The increase of red cells and the decrease of hemoglobin were both more marked in the orange red group than in the controls. Both this change and the greater loss in weight referred to above as the lowered blood pressure mentioned below, may have been due to increased perspiration on the part of the orange group during the hot season.

(3) *Blood Pressure*—The blood pressure of both groups fell during the hot season, the fall being slightly more marked in the orange red group. In December the pressure in both groups returned to practically the original point.

(4) *Pulse, Temperature and Respiration* were taken after drill or other exercises 8,000 observations being made. Averages for 1,500 observations are shown in the following table—

	Temperature	Pulse	Respiration
Orange red group	98.792	91.2	22.3
White group	98.780	90.9	21.3

It will be seen that each is higher for the orange red group than for the controls, but the differences are very slight.

(5) *Comparative Sick Reports* showed insignificant differences. The admissions per 1,000 and the days lost

per 1,000 were respectively, 508 and 3,526 for the special group and 478 and 1,522 for the white group. The admissions per 100 for heat exhaustion were higher for the orange red group, 27 as compared with 21 for the controls.

(6) *Strength Tests*—Strength tests on men from the two groups showed nothing of value.

(7) *Symptoms Referable to Climate*—The two groups suffered about equally from these except as regards excessive perspiration, which was much more complained of by the men of the orange red group.

(8) *Impressions of the Weather*—Sixteen men preferred the orange red garments, 54 had no choice between the colors and the remainder, nearly 400, expressed an opinion adverse to the colored underwear. Fifty said it was hotter and 104 others stated that it caused more profuse perspiration. No organization commander saw any benefit from its use and of 16 officers who used it for a time only one expressed approval.

(9) *Photographic Experiments*—Experiments showed that the campaign hat was as impervious to the rays affecting the photographic plate, without the orange lining as it was with it. The lining added materially to the opacity of the khaki cap. The differences in penetrability by actinic rays between a light skin and a dark Filipino were slight and were entirely neutralized by one layer of khaki uniform cloth. The pigment of the darkest skin was found nowhere near as protective as was the orange red garment.

(10) *Temperature Experiments*—Extensive experiments both on and off the body, showed that, when exposed to the sun, the temperature was greater beneath the orange red material than it was beneath similar white material. The same was found to be true when both materials were overlaid by khaki cloth.

(11) *Moist Heat Experiments*—These were carried out at Los Baños in a room ranging from 90° to 98° F and with the atmosphere saturated with moisture. Men remaining four hours in this room lost greatly in weight and had a marked rise in temperature with acceleration of pulse and respiration and a fall in blood pressure.

From the results of the whole test and the experiments the conclusion was reached that the physiological effects of the climate in the Philippines can be and probably are produced by moist heat with out the aid of the sun's actinic rays and no evidence was found that the sun's rays alone could or did produce these effects. On the contrary, the test underclothing added materially to the burden of heat which the system was compelled to endure and which is probably the chief cause of tropical deterioration. Even if the actinic rays have any influence whatever on the system, it is believed that they are sufficiently excluded by the khaki uniform and the campaign hat.

LEPROSY IN N S WALES

THE Government of New South Wales have kept up Lazarets in Little Bay since the year 1883, during which period of 27 years there have been 118 admissions, of which 53 have died, 4 have been repatriated or discharged and 19 lepers remained on 1st January 1910. They are of all nationalities and colours, a large proportion being Chinese. That these lepers are well cared for at the Little Bay Lazarets is evident from the fact that with an average strength of 19 or 20 patients the total cost in 1909 amounted to over £1,616, or nearly 25,000 rupees, or an average of nearly 1,250 rupees per patient per annum.

Dr J Ashburton Thompson, DPH, has submitted an elaborate and complete clinical and etiological report on the cases admitted in 1909. These clinical notes are most complete and valuable to anyone who treats leper patients. There

is no note which summarises the value of any particular treatment, but we note that further experience has confirmed Dr Ashburton Thompson in his opinion that "Nastin B" is "a therapeutically inert substance." Other drugs mentioned are chalmogra oil, gynomaidate of magnesia (30 to 60 grains a day), and antileprol (60 minims subcutaneously). It is not said what antileprol is, but no special value seems to be attached to it, it is probably the same as mentioned in the invaluable "Extrapharmacopœia" (14th Ed, p 491) as chalmogra oil (in $\frac{1}{2}$ and 1 gramme capsules, *Lancet*, ii, 1909, p 1678).

A useful addendum to Dr Thompson's report is a reprint of extracts from the report of the Leprosy Commission in India in 1893, which the present generation has forgotten, but which still remains the most authoritative pronouncement on the subject of leprosy—how many of our readers could say off hand what the conclusions of this important Commission were?

THE "K" PACKET

THE August number of *The Military Surgeon* has several articles of much interest to medical officers in India. Among them is one by Colonel L M Maus, Chief Surgeon, Department of the Lakes, on the prevention and treatment of venereal diseases in the Army. Our readers may remember that in our September issue we quoted a remark which indicated the disbelief of an American Medical Officer as to the statistics of the reported decline of venereal diseases in the British Army in India. The statistics quoted of the prevalence of venereal diseases in the United States Army lay no such flatteringunction on the soul of the Army Medical Reformer. The following are quoted by Colonel Maus:

1899	146 cases per mille
1902	168 " "
1905	200 " "
1906	190 " "
1907	196 " "
1908	194 " "

In some posts where the population consisted largely of Mexicans and Negroes the rate of admission ran as high as 225 per mille. The three measures in use for the suppression or control of these diseases in the U S Army are (1) lectures, (2) physical inspection of the men, (3) personal prophylaxis by use of an antiseptic after-contact.

The War Department, Colonel Maus complains, is not giving the needed support to the system of physical inspection. It is represented as "offensive" and even "humiliating." Therefore apparently chief reliance is placed on the German practice of "personal antiseptic prophylactic"—or the use of "K" packets. The "K" packet consists of a phial containing 2 cc of a 20 per cent glycerinated solution of protargol, with a medicine dropper and a small box of blue (Hg) ointment. These packets were kept in orderly

room and dispensary and issued free. They have been in use since 1908 and have been largely successful, but many men will not take the trouble to use them. The objections to the free issue of such packets are obvious, but are overborne by the great necessity of protecting the men.

Colonel Maus does not approve of the present "K" packet, it is clumsy and difficult of application. He recommends an antiseptic, semi-liquid or paste in collapsible tubes with a long slender nozzle and a well-fitting cap. He says every man should be made to carry this and be court-martialled if he contracts venereal disease. In a subsequent issue (*Military Surgeon*, September 1910, p 267) Colonel Maus gives the following formula—Thymol one part, Calomel five parts, Benzoylated lard eight parts and refined suet six parts, but he is satisfied that calomel alone in combination with any animal fat is all that is required to prevent infection from any of the three venereal diseases, and in this opinion he is supported by Captain C F Morse, Medical Corps, U S A, in the same Journal (p 268).

MALARIA IN THE CANAL ZONE

We recently quoted some of Dr Darling's work in a notice of the Proceedings of the Canal Zone Medical Society, we now find a very interesting article by him on the *Annals of Tropical Medicine*, &c (Vol IV, 2nd July 1910). The paper is too long to fully abstract, but we will select a few points of especial interest.

Dr S T Darling gives a list of eleven anophelines in the Canal Zone, but they are, by no means, equally common. He also describes a simple method for keeping the breeding tanks of larvae clean and free from decomposition by passing a fine jet of air through the water once or twice a day.

A very interesting note is on the "limits of infectiousness of man." It is laid down that persons with more than 12 gametes per mm, must be regarded as "gamete carriers," i.e., as infectious.

It was also found, as also in Calcutta and Bombay, that anophelines can breed in very brackish water (3 per cent NaCl). Another practical note is on the composition and size of mesh needed for wire screening. For the anophelines a mesh of 16 holes to the inch is sufficient, though for the yellow fever mosquito *Stegomyia Calopus*, such a mesh would be practically but not absolutely safe. We are of opinion from experience of the wire gauze used in the fever wards of recently built hospitals, that anything smaller than 16 holes to the inch is so fine as to become easily blocked with dust, and so it becomes impervious as well as mosquito proof, with the natural result that doors are left wide open. No doubt the copper zinc gauze is superior to the iron, and no doubt more expensive, the percentage composition recommended by Panama experience is copper 65, zinc 34, iron 1.

The following remarks on the use of quinine are worth quoting—

"The effect of quinine administration, then, is to make the gametes gradually disappear from the peripheral blood by the destruction of young forms, the gametes being phagocytosed by splenic and hepatic endothelium. It is concluded that quinine, ten grains, *ter die*, in solution will gradually reduce the sexual form of the parasite in man to a non infective minimum in from a few days to a few weeks depending on the severity of the infection."

In simple tertian malarial fever, gametes disappear from the peripheral blood within two or three days under quinine treatment, and generally disappear even when quinine is withheld if the patient is at rest. There are never as many gametes in the peripheral blood in simple tertian as in malignant tertian malaria. As a consequence, one never finds as many simple tertian zygotes as malignant tertian zygotes, in infected mosquitoes.

THE *R A M C Journal* for August has many articles of interest to our readers. Passing over the sleeping sickness article, of which there has been an abundance published of late, we come to a useful article by Lieutenant-Colonel Butt, on "Sandfly fever in India," which would have been still more useful had Lieutenant-Colonel Butt been a regular reader of the *Indian Medical Gazette*, he particularly refers to the large number of cases diagnosed as influenza in the army returns, he seems to think that many of these cases are sandfly fever. We must, however, object to his remark "Doubtless influenza has occasionally invaded India." This is surely a very quaint observation, as every one knows that ever since the pandemic of 1889 India has never been free from influenza and it is absurd to suppose that these countless cases, mild and serious, are not influenza, we speak at least for the cases prevalent among the civil population of India, European and Indian. Major G A Moore, *R A M C*, has an useful article on nasal obstruction, a very common complaint in all classes of the population. Major Leonard Rogers, *R M S*, we are glad to see, has had his article on "liver abscess as a preventable disease of the British Army" at last published, and we hope that *R A M C* officers who have unique opportunities for the study of this disease will take up the Ipecacuanha treatment.

Captain L Bousfield, *R A M C* (Egyptian Army), publishes his final report on *Kala azar* in Kassala and the Blue Nile districts of the Sudan, and finds that the Blue Nile districts are "extensively infected," but that the disease is probably a "new arrival" there. His colleague Captain Archibald has found typical parasites in the blood of persons from Sennar. It is also noted that bedbugs are extremely common (see also Douglas Sladen's interesting book, "*Queer Things from Egypt*") It is also mentioned that four Englishmen have contracted the disease in the Sudan. The widespread prevalence of the infection by the Leishman-Donovan bodies is a remarkable fact.

The same issue contains several other interesting clinical articles. Other more military articles are the report of a lecture by Captain A. W. Tufnell, of the General Staff, on lines of communication and a translation of the German report of the German Campaign in South-West Africa in 1904-06, which deals largely with the nutritive value of the rations supplied to the German troops.

SOME time ago the newspapers treated us to enthusiastic accounts of a new arsenical drug with the mysterious name 606. As this drug was put forward under the auspices of men such as Ehrlich and Hata, and supported by the opinions of Weichselmann and Neisser, it was natural that attention should be paid to it, especially when so skillfully advertised. It is claimed to be specially destructive to the spirochaetes of syphilis. It is allied to atoxyl and its composition is indicated (or it may be hidden) under the term—"dioxydiaminoarsenobenzol." Its results are claimed as "marvellous." Spirochaetes are said to disappear from chancres and condylomata in a few hours, other syphilitic lesions heal in a few hours. We heard much the same of atoxyl, and now we only know it as dangerous and likely to produce blindness. We recommend the accounts of the wonders of 606 to be taken with caution.

LIEUTENANT-COLONEL J. T. CALVERT, I.M.S., has brought out the new 4th edition of Dr. Ghosh's well-known and useful *Materia Medica*.

Reviews

The Duties of Sanitary Inspectors in India.

—By A. G. NEWELL, M.D., D.P.H. Second Revised Edition. Price Re. 1-2. Indian Public Health Office, Lahore.

WE welcome a second revised and enlarged edition of Dr. Newell's admirable little pamphlet on the duties of Sanitary Inspectors. An Urdu edition is also being published in Lahore.

We expressed a high opinion of the usefulness of the first edition, and we are glad to see a new edition called for so soon. Numerous minor additions and alterations have been made, and a useful and practical chapter is now given on meat inspection, which must often come into the sphere of the duties of a Sanitary Inspector. We cordially again recommend this useful pamphlet to not only our medical readers, but to all Municipal Commissioners as well as to all Sanitary Inspectors for whom it has been specially written.

A Text-Book of Pathology for Practitioners and Students —By JOSEPH MCFARLAND, Second Edition. W. B. Saunders Co., 1910.

THE new edition of this comprehensive work on pathology will be welcomed by all who are acquainted with the book. It has been thoroughly revised and brought up to date, with the inevitable result of an increase in bulk, so that the pages now number 855, while the illustrations, many of them coloured, total 437. As might be expected from an American author, tropical diseases receive greater attention than in most English books. The protozoal parasites are well described, but the addition of a coloured plate illustrating the malarial organisms would be an improvement. The drawing of the parasite of kala-azar in the blood shows the rarely seen aggregation of organisms instead of the usual oval form. The more advanced information is given in smaller print for the convenience of students, including brief accounts of the bacteriology of the diseases dealt with. In the description of the cholera bacillus we miss any account of the agglutination test by which alone it can be identified from harmless water commas. Taken, as a whole, this work is one of the most complete and well illustrated books on pathology which we know, and will prove of great value to both the student and as a work of reference to the practitioner.

Atlas of Pathological Anatomy —By Professor A. KAST, E. FRANKEL AND DR. T. RUMPEL. Complete in 26 parts. Single parts 5s. net, single plates 1s. 6d. each.

THIS magnificent work consists of a number of fasciculi, each containing four large coloured plates many with two or more coloured drawings in them. The text is in four languages, including English, German, Italian and Russian, and gives a short clinical history and *post-mortem* appearances of each case. The plates measure 17 by 12 inches, so are suitable for framing and suspension in pathological museums and demonstration to classes of students. They well represent the natural appearances of fresh specimens as seen in the *post-mortem* room, so are of great value for teaching purposes. They are not arranged in any definite sequence, a single part illustrating such varied conditions as cancer of the duodenum, tubercular peritonitis and affections of the bone marrow, although some interesting series are also placed together. Among these we find excellent illustrations of the naked eye and microscopical appearances in cholera, both as it affects the intestine and the kidneys, including the comma bacilli in stools, the extreme hæmorrhagic form being also shown. Acute valvular diseases of the heart are well illustrated, as well as numerous forms of tumours. Only the first twelve parts have yet reached us, but when the work is complete it will be a valuable addition to hospital and other libraries, as the plates all reach a high degree of excellence.

The Dietetic Treatment of Diabetes—By B D BASU, MAJOR, I M S (ret'd) Third Edition, 1910
Panini Office, Allahabad Price Rs 1 8

THIS is the third edition of a little work to which Major Basu has devoted much time. In it Major Basu lays especial stress on the value of the "cocoanut cure" and the use of "Oleaginous seeds."

It is difficult to know if the book has been written for the benefit of sufferers or for the instruction of the medical profession on a disease where it is only too willing to admit that there is still much to learn. The text seems written for the layman, but the copious notes and references which form so large a part of the book are certainly of use to the medical man only.

The little book, unfortunately, does not touch on the etiology or causation of the disease and hence not on its prevention. It is entirely devoted to the treatment of the disease.

We are not prepared to admit any "marvellous residual kidney power of the natives of India, whether such power would or would not be the 'keynote of the longevity of cases of diabetes' among Indians."

We need not refer to the large amount of space in this volume devoted to the various theories, cures and methods of many physicians, but may better refer to Major Basu's own primæcæ.

We very much doubt if there is any truth in the assertion that "every country spontaneously furnishes remedies for the maladies of its people." We do not know who put forward first this absurdly teleological opinion, but it certainly does not apply to diabetes nor to the cocoanut. Diabetes is a world-wide disease not confined to the tropics, but unfortunately widely prevalent among the educated classes in several parts of India, due, it is supposed, to many causes among which must be considered early sexual life, excessive use of sweet stuffs and carbohydrates, often combined with a sedentary life, whereas the cocoanut plant is unknown in northern climes where diabetes is well known. At any rate, let us hear what Major Basu has to say. Unfortunately he gives no cases, in fact, no proof beyond his assertion that it is the best in every respect. The same remark applies to his recommendation of other oleaginous seeds, *eg*, sesame, *til*, chironji, poppy seeds, etc. The little volume is of value in containing the opinion of a medical man who has had much experience, he recommends the "cocoanut cure" and gives useful directions for its use, but if he is to convert his medical brethren to his opinion, he must give carefully noted cases. His mere *ipse dixit* alone will not convince or convert. We can, however, recommend the little volume to the perusal of Civil Surgeons. We think the book should be entirely rewritten and we would value a book written by an Indian on this disease, which would deal with etiology, and prevention, instead of merely advocating a special cure.

Medical Jurisprudence and Treatment of Poisoning—By R C RAY, Calcutta The Hare Pharmacy, 1910 Price Rs 2

DR RAMESH CHANDRA RAY has compiled the most compressed book on medical jurisprudence and toxicology that we have ever read. It is medical jurisprudence in "tabloid" form. In the course of 237 pages he has managed to compress a vast amount of information on these subjects. We have not found any mistakes, and we must say that if any student in the same way boiled down this subject into his own note book, he would have a good working knowledge of his subject. In his endeavour to produce "tabloid" *Jurisprudence* we think Dr. Ray has been entirely successful, and we can commend his book to all students, not for general use, but to read over and digest immediately before an examination.

The Ear and its Diseases—By ALBERT A GRAY, M D, F R S, Ed, Surgeon for Diseases of the Ear, Victoria Infirmary, Glasgow, &c, London Messrs Baillière, Tindal & Co., 1910 Demy 8vo, pp vii, 388, with stereoscope and 123 Illustrations, of which 37 are stereoscopic 12s. 6d net

AMONG many good text books on ear diseases, published within the last few years, this of Dr. Gray's is quite one of the best, and there is no doubt it will make its way and become a favourite. It is uncommonly well written and complete. The illustrations are unusually good and mostly original, explaining the anatomy and pathology of the ear in a way ordinary preparations can not make clear. The author includes a chapter on acoustics which is very good and not a bit too full. Nearly sixty pages are given up to the anatomy and physiology of the ear, and the numerous stereoscopic plates make the text very "living." These would be even more useful if the text of each were written above one photograph and not spread across both. The various diseases of the different portions of the ear are then described in a most practical and useful way, the work being throughout thoroughly up to date and reflecting great credit indirectly on the aural department of the Glasgow Victoria Infirmary, over which Dr. Gray presides. A small but good hand stereoscope, made by Messrs R & J Beck, is inserted in the book cover. The publishers are to be decidedly congratulated on their share in bringing out the volume.

Medical Society.

THE BOMBAY MEDICAL AND PHYSICAL SOCIETY

THE Annual Meeting was held in the University Library on 31st March. The following

committee was elected and Dr. Suiveyor was elected Hon. Secretary —

Surg Genl H W Steven son, I M S	Lt Col W B Bannerman, I M S
Lt Col H P Dimmock, I M S	Lt Col L F Childs, I M S
Hon Dr Temuljee Bhic kajee Nariman	Lt Col A Street, I M S
Lt Col C H L Meyer, I M S	Capt E F Gordon Tucker, I M S
	Dr N F Suiveyor

The following specimens were exhibited by Dr. Arthur Powell —

RUPTURE OF HEART BY BLOW OF THE FIST. No EXTERNAL MARKS OF INJURY

Dr. Powell showed a heart, the left ventricle of which had ruptured near the base close to the inter-ventricular septum. The heart was that of a woman, aged 58, who, when apparently in perfect health, interfered in a quarrel between her daughter and son in law. The latter struck her a blow with his clenched fist whereon she at once fell and in a few moments expired.

With the exception of a patch of atheroma in the transverse portion of the aorta the body was otherwise healthy.

COMMINATION OF THE LIVER. No EXTERNAL MARKS OF INJURY

Dr. Powell showed a liver almost completely divided in the dorso-ventral plane through the middle of the right lobe. Elsewhere the liver was comminuted by numerous—at least thirteen or fourteen—extensive fissures, literally pulping the organ. There was no sign of contusion on the abdominal or thoracic wall, no fracture of the ribs, in fact no other sign of injury on the body or clothes.

The deceased, according to witnesses, was found in a collapsed condition, seated on a bench, fifteen paces from the nearest railway line in a railway station. The Railway Police and all witnesses swore no one had carried him there, that he simply complained that he felt ill and giddy, and almost immediately died.

The only way in which Dr. Powell could conceive such injuries could be inflicted would be by a crash between buffers of a train almost come to a standstill. If so, how did the man go to the seat on which he was found? Did he walk there unaided? Or was he carried there, and was the evidence of Railway Police and other witnesses entirely fabricated? If so, what could have their motive?

Dr. L. G. Date showed a curious case of a syphilitic affection of the humerus, the pathology of which was far from clear. Dr. N. Suiveyor read an interesting note on *Anguillula Stercoralis* now known as "*Stongylouides Intestinalis*" (Bavay 1876)—

"Attempts were made to study the length of time that this small nematode can survive outside the body. Hanging drop preparations of the faeces showing the embryos after incubation at 37.5°C showed no change and died after 48 hours. Faeces when implanted on sterilised garden soil, failed to show any embryos after 24 hours. However the embryos which to begin with were 342 μ long by 1 μ broad developed 395 μ to 432 μ in length after 24 hours in sterilised 'tap' water at room temperature, and were 486 μ to 594 μ long by 1.5 μ broad after 48 hours. No further change was noticed after this, and the longest time they were found to survive in this sterilised tap water was 14 days."

This worm is common in India as well as in most countries, in Asia, Europe and the Americas. It is not yet settled that the worm is pathogenic,

though associated with diarrhoea and intestinal catarrh.

Dr. Date showed a curious case of congenital deformity of the hand in a native of Colaba. The left hand was rudimentary—

"The general appearance of the left hand was something like foot seen from front only. These rudimentary fingers could not be moved except the little finger showing absence of any tendons. No flexion, or extension of the fingers. Little finger showed a small extensor tendon which was felt and which gave the finger little side to side and extending movement. Nails were present for all fingers. Lower extremity nothing particular noted. The adjoining photographs would give you an idea very definitely. The X-ray photograph shows very faint shade in the fingers probably of last phalanges."

The following note by Dr. Suiveyor in a case of Raynaud's disease is interesting —

"The patient who was first exhibited at our meeting in January 1909 when he had the acute attack of the disease, sought re-admission on the 29th May this year for diarrhoea and pain in the calf muscles. He was unable to walk at this time. The blood pressure was 134 mm Hg in the left brachial. Lecithin tablets (Marek's), Atis, and Glycerophosphate of Calcium were prescribed for treatment. Ten days after admission the blood pressure was 108 mm Hg. The variations subsequently were as follows —

29 5-10	on admission	134 mm Hg
31 5 10		108 "
1 6 10		116 "
4 6 10		104 "
8 6 10		102 "
11 6 10		102 "
13 6 10		102 "
17 6 10		96 "
21 6 10		98 "
29 6 10		98 "

The ulceration on the toes which were the seat of the disease on his first admission was completely skinned over with thin pale pinkish skin. Knee jerks were exaggerated especially in the left leg, where ankle clonus was also present. These points go in favour of Raynaud's disease, being more a nervous disease than arterial. One may, however, argue that the parietic symptoms were only due to secondary degenerations in the cord subsequent to disuse of the limbs, as the nerves are said to undergo a slow degeneration which creeps up to the cord subsequent to prolonged disuse of the muscle supplied by it.

Under treatment the patient rapidly began to regain power, was able to walk with the help of crutches, and when discharged (8-7-1910) he could walk a fair distance without any support."

ANNUAL REPORTS

PUNJAB SANITARY REPORT, 1909

COLONEL C. J. BAMPER, I.M.S., D.P.H., submits this the last of his many Sanitary Reports on the Punjab. The year was a healthy one generally the death rate fell, and as a probable result of the great malarial epidemic of the autumn of 1908, the birth rate fell also, it being as low as 18 per mille in June July and as high as 52 in the following November. The average is about 40.

Cholera did not assume any severe epidemic form during the year, and the total mortality which amounted to 1,513 at a rate of 0.08 per 1,000 of population, was much below that for the preceding year and also for the average for the quinquennial period ending in 1908. The largest number of deaths, or more than half of the total mortality of the Province, occurred in the Delhi Division, including the 588 deaths, or more than one third of the total mortality, in the district of Karnal.

The disease appeared in eighteen districts in the month of April, and the enquiries made elicited the fact that in all places excepting Simla and Kangra, it was introduced from Hurdwar by pilgrims returning home. The Punjab cannot be considered to be an area in which cholera is endemic, as it is rarely present in the Province during the three winter months of December, January and February, though there is usually a great increase in the number of cases in the latter half of April, the general opinion being that the disease is brought into the Province by persons returning from the Baisakhi fair at Haidwar, which takes place in the middle of April. The disease is probably introduced into Haidwar, from endemic areas in Bengal by pilgrims that assemble at this time. The Local Government was asked to address the United Provinces Government on the subject of the insanitary state of the Bhim Goda Tank at Haidwar which is much resorted to by Punjab pilgrims. This is a masonry tank just off the river, but communicating with it by a small entrance and exit channel, on one side of which there is high ground from which the drainage appears to find its way into the tank. This ground is fouled by human excreta some of which is washed into the tank. From the reply received it appears that the United Provinces Government has under then consideration the possibility of protecting the tank from contamination.

Small pox—The number of deaths was in 1909 the lowest on record since 1892.

Plague—Capt Clifford A. Gill I.M.S., submits the report on plague. The season was the mildest since 1901. We quote the following extracts from this report—

One of the most remarkable features of the year was the occurrence of a comparatively severe outbreak at Multan. This city had previously been conspicuous by reason of its singular freedom from plague epidemics. The occurrence, therefore, of 1,763 cases and 1,384 deaths in a mild plague year appears to call for remark. Unfortunately unless fortuitous circumstances be considered an adequate solution of the problem, no information is forthcoming which satisfactorily explains either its former freedom or the recent visitation from districts and one Native State remained free throughout the year but, speaking generally, no alteration in the extent of the infected area took place.

Seasonal variation—As in former years the intensity of the epidemic was experienced in the months of April and May, and in regard to its seasonal variation the mild nature of the epidemic is the only point up to this time calling for remark.

The subsequent course of events was typical. Usually the first week in May marks the week of maximum intensity in the Punjab, thereafter its decline is abrupt, and by the middle of June has been succeeded by a period of comparative freedom from active manifestations of the disease. This quiescent interval usually continues until the month of September when the reappearance of the disease indicates the onset of a new plague season.

In 1909 the week of maximum intensity was later than normal and the decline of the epidemic was slower and less complete than usual. Thus, in June and July 1909, 1,417 and 121 deaths, respectively, were reported, as compared with 1,097 and 24 in the corresponding months of the previous year. It is difficult to explain the reason for this, but it may be remarked that it was associated with the late advent of the hot weather. But whatever the explanation it is interesting to note that a late and incomplete subsidence of the disease was associated with its early and widespread recrudescence in the autumn. This fact, together with the frequency with which recent importation was thought to be responsible for its spread, is not without bearing on the question of "recrudescence." And, if by that term is meant the reappearance of the disease in places without recent importation and unaccompanied by active plague in man or rats throughout the quiescent interval, further investigation appears to be necessary before the existence of this phenomenon can be held to be definitely established.

A few districts continued to show active infection throughout the hot weather and from September onwards to the close of the year the disease reappeared extensively throughout a large part of the area infected in the previous spring and prevailed with considerable severity in the south eastern portion of the province. In regard to its origin and mode of spread importation played a large part, and in a certain number of instances there was direct continuity of infection with the epidemic of the previous May.

Anti plague measures—Having discussed briefly the history of the epidemic, it is necessary to recount the measures that were taken to combat it. Here there is nothing new to record, as in previous years the measures relied on were—(1) rat destruction, (2) evacuation, (3) inoculation, and (4) disinfection. To carry out these and to educate the people in regard to plague and anti plague measures a special plague staff consisting of fifteen officers of the Indian Medical Service, twenty four civil assistant surgeons and some thirty hospital assistants were employed.

Attitude of the people—But the value of an official agency and the efficacy of their methods depend largely for success on the co-operation of the people. Indeed, since no compulsion is exercised, this factor is of such paramount importance that measures themselves scientifically and theoretically sound are rendered practically useless if they fail to commend themselves to those for whose benefit they are designed, and it is to be regretfully recorded that, perhaps even more so than in former years the general apathy and distrust evinced towards all remedial measures was at once the despair and stumbling block which confronted the plague staff at every turn and prevented their efforts being attended with a greater measure of success. The valuable legal powers possessed by villagers in regard to the prevention of access of persons coming from infected areas were never exercised and, in spite of many terrible object lessons in the danger of admitting such persons into plague free areas, this risk was willingly incurred in preference to the odium attaching to a breach of the laws of hospitality. Instances were, in fact, recorded in which villagers desirous of adopting some reasonable precautions of this nature were boycotted by their caste fellows.

Auxiliary staff—A feature of our plague policy has been the organisation of a staff of plague helpers chosen from amongst the leaders of the people. It was thought that besides forming a valuable auxiliary to the special plague staff they would be an important agency for spreading knowledge in regard to plague and anti plague measures. Unfortunately, however, reports are almost unanimous that, except under the immediate supervision of a plague officer, little assistance can be expected from this quarter. Nearly 800 have, nevertheless been trained and they, no doubt, to a limited extent serve a useful purpose. In Jullundur considerable progress has been made in this direction, and instances have not been wanting in which the initiative and zeal of local plague agents have been the means of preventing the spread of the disease. But too often the work is undertaken for private motives rather than for the public weal, and it is discontinued after the attainment of the object in view or, in some cases, because the expected reward has not been forthcoming.

1 Rat Destruction—This measure has been continued on the same lines as last year. Systematic trapping has been carried out in 97 municipalities and nearly 4,500 villages. In Jullundur, and to a less extent in Hoshiarpur, the measure has achieved considerable popularity. The former district indeed, may be considered to be one huge trapped area, while 1,200 villages in the latter are supplied with traps. Baiting operations have been chiefly carried out in villages in the vicinity of infected areas and, at the commencement of the plague season, in those places where plague has persistently recurred each autumn.

In regard to the effect produced by these poisoning campaigns many officers are now of opinion that either on account of the fear of prejudice it excites or from the inherent difficulties attending it little reliance can be placed on this method of dealing with the rat infestation of Indian towns and villages. More faith is placed in systematic trapping, and in order to gauge its effect the plague mortality *per mille* during the 1908-09 epidemic in the "ratted" and "non ratted" areas of six districts of the Punjab has been estimated. The selected districts include all the extensively trapped areas except Jullundur in which no extensive "non ratted" area exists. Every effort was made to render the test as fair as possible, and with this object all municipalities were excluded from the trapped area and only those places were included in which systematic trapping had been carried out for at least six months.

The results were not markedly in favour of rat destruction except in one district and the average mortality *per mille* of population in the "ratted" and "non ratted" areas of these six districts worked out at 1.04 and 1.71 respectively.

Further evidence on the same subject was presented by Captain G. I. Davis in his report on the special investigation which he carried out in 1907-08. His results are on the whole favourable to both baiting and trapping, provided that they are adequately supervised and systematically carried out. But even if Captain Davis's premises and conclusions be accepted, it may be doubted whether his experiments were carried out under the conditions usually pertaining when this measure is undertaken on a large scale. Moreover it has to be recognised—and this becoming more manifest as time goes on—that the people are apathetic towards rat destruction. It is not merely its theoretical value which requires demonstration but whether in the face of an indifferent populace it can be undertaken with results commensurate with the expenditure involved. Fresh facts, it is hoped, will shortly be forthcoming to throw more light on this subject.

2 Evacuation—There is little new to record in regard to evacuation which is, perhaps, one of the most valuable means we possess of dealing with an epidemic on a large scale. There is evidence of its increasing popularity in the thinly populated tracts of the province but, on the whole, it was not largely resorted to. Unfortunately amongst Muhammadans, in spite of *fatwas* issued by a leading Muhammadan

society in Lahore, the religious prejudice against this measure is still strong, whilst with Hindus evacuation too often means the dispersion of the population and the dissemination of the disease far and wide. In towns evacuation remains a matter of great difficulty, but in villages efforts have been made by the provision of *chappars*, and by offering rewards to encourage it. It is, however, difficult to avoid the conclusion that, if people wish to evacuate they can usually do so with the means ordinarily at their disposal, on the other hand, if they are opposed to the measure, no inducements we can offer will be of much avail.

3 Inoculation—During the year 41,020 inoculations were performed as compared with 53,629 in 1908. The comparative mildness of the epidemic in the spring and more especially a widely held opinion that the cycle of plague was on the wane accounts for the decrease in the figures. It is to be feared that, unless confronted with a serious epidemic this measure will not be freely resorted to by the people of any caste, creed or social grade. Great efforts have, however, been made to popularise it and, while pressure in any form has been avoided, additional means have been taken to spread knowledge in regard to its value and to place it within the reach of all who desire to avail themselves of it. With the former object a pamphlet entitled "Some Facts about Inoculation" has been prepared under the orders of His Honour the Lieutenant Governor for distribution throughout the province.

The following Note on Typhus Fever serves to remind us that this fell disease is still one of the continued fevers of India—

In connection with this type of fever, I quote from the report made by the Civil Surgeon of Deia Ghazi Khan upon an outbreak which took place there. He writes "Typhus fever which I consider endemic in this district appeared during the spring of 1909, but curiously enough in villages that were not infected, as far as I know, during the previous year and the villages that were infected during the previous year were not infected in 1909. There seems to be a great field for investigating typhus fever in this district, and I am sure much valuable information could be obtained by an expert bacteriologist and parasitologist. It would appear that the disease might be related to the bed bug. It is marked how the disease runs through a house and keeps very much to one *mohalla* and indeed there is little communication between one *mohalla* and another during the dark hours and that is the time when the bed bug is most active. One case of typhus fever was imported into the District Jail. Due isolation was made, no further case occurred and none of the attendants became infected. I attribute this not only to fresh air but to clean bedding, that is free from bugs." In regard to the suggestion for making investigations the Deputy Commissioner notes that "the disease was really serious in places, and Captain Abbott's idea is worth attention. In this context I have asked Major Perry to investigate the next outbreak that may occur."

II

SANITARY REPORT, E B & A

MAJOR E. WILKINSON'S report on sanitary matters for the year 1909 is of peculiar interest in that it is the fifth report on the new province, and a series of graphic charts very admirably illustrates the ups and downs in public health during the first lustrum of the new Province's existence.

THE population on which the statistics are based is 29,812,735 or just under 30 millions. The following tables

give the death and the birth rates in this and other provinces during 1909—

Province	DEATH RATE			
	1903	1907	1908	1909
Eastern Bengal and Assam	31.60		30.74	33.89
Bengal	35.53		38.56	30.55
Central Provinces	37.76		38.12	33.09
Madras	23.60		26.20	21.80
Burma	25.36		28.23	30.18
Bombay	37.00		27.15	27.38
United Provinces	40.30		52.73	37.34
Punjab	48.90		50.70	30.90
North West Frontier Province	31.50		35.83	26.60
	BIRTH RATE			
	1903	1907	1908	1909
Eastern Bengal and Assam	38.56		41.14	40.46
Bengal	38.90		36.09	37.79
Central Provinces	50.62		52.84	51.63
Madras	31.10		32.40	33.10
Burma	33.12*		34.84	35.91
Bombay	33.25		35.72	35.59
United Provinces	43.09		37.46	33.32
Punjab	42.60		41.80	35.10
North West Frontier Province	35.80		37.30	34.70

Major Wilkinson comments as follows—

"In view of the remarks I have made on the subject of enquiry into the registration of births and deaths, I do not propose to attempt an estimate of the accuracy of the vital statistics of this province. There has undoubtedly been greater activity of the inspecting staff in most of the districts during the last two years, and a general survey of the returns conveys the impression that this has resulted in some improvement in the reporting of births and deaths that is to say, there appear to have been a fewer failures to report these occurrences than in previous years."

A matter to which I would invite attention is the very great delay in the submission of vital statistical returns by many Civil Surgeons. The delays are greatest in the case of the Assam districts. The returns from Sibsagar, for example, have never been submitted during the month following that to which they relate, those for Sylhet only once and those for Lakhimpur only three times during the year. Of the Bengal districts, the returns of Mymensingh are almost equally late. It will thus be obvious that it is at present impossible to meet the wishes of the Government of India as regards the submission of monthly returns within four weeks of the end of the month to which they relate."

Unless things are greatly changed under the new régime we would be inclined to attribute the delay complained of to the very inadequate staff provided for Civil Surgeon's Offices. In many districts there is only one clerk, in others two, but in all the work is very great and increasing. At least this is the case in Bengal, where we have heard many complaints on this matter, and we fancy things are much the same in E B & A. It is high time to improve the office of the Civil Surgeons and more clerks are, we believe, urgently needed in many districts.

The following table of the chief diseases is very interesting—Cholera, was somewhat below the average but as in

Disease	RATIO FROM 1899-1908			1909		
	Urban	Rural	Combined	Urban	Rural	Combined
1	2	3	4	5	6	7
Cholera	2.83	2.53	2.54	2.58		
Small pox	24	24	24	39	2.40	2.40
Plague	Data not available			80		79
Fever	14.22	23.12	22.93	0.01		0.0003
Dysentery and diarrhoea	1.95	69	72	12.79	21.82	24.56
Respiratory diseases	Data not available			1.75	85	87
Injuries	31	36	35	45	15	15
All other cases	5.73	4.76	4.78	36	38	38
				5.34	4.68	4.69
TOTAL	25.42	31.76	31.63	23.70	34.11	33.59

most years there was a "double wave" "The smaller wave coinciding with the subsidence of the rivers in October, reaches its height in November and falls until February. The larger wave commences in March reaches its culminating point in April when the great rivers begin to rise and decreases rapidly during the rainy months."

"The most noticeable feature in the statements is the great increase in the mortality from small pox especially in rural areas, which in 1909 was more than three times as great as during the preceding decade."

There is also an appreciable increase in the fever death rate which is entirely confined to rural areas, and in the death rate from all causes.

In contrast, there has been a slight fall in the mortality from cholera, and in towns in that from dysentery and diarrhoea."

We need not here refer to the synopsis given of the recommendations of the Simla Malaya Conference.

The following table is interesting in showing the falling off in Kala azar in the Assam Districts —

1900	6 315 deaths
1901	5,831 "
1902	6,319 "
1903	5,033 "
1904	3,748 "
1905	3,030 "
1906	2,407 "
1907	2,227 "
1908	1,786 "
1909	1,703 "

The account given of the development of the pice packet distribution of quinine is very instructive, and we look forward with interest to the development of the plan of selling or giving away quinine by "treatments" and not by "doses". Each treatment consists of *twenty four grain tablets*, in a glass tube, and sold at 3½ annas each, and the vendors are allowed a liberal profit. The hydrochloride of quinine is substituted for the sulphate "on account of its higher quinine content and greater solubility."

The following extract shows what is being done for Coolie emigration —

"Owing to the high incidence of cholera among coolies in transit during the early part of 1903, the Sanitary Commissioner was given a free hand in improving the existing arrangements and in making them effective. Lump grants were placed at his disposal for expenditure on such objects as the entertainment of temporary establishment erection of temporary sheds, etc., and the proper equipment of depôts and hospitals."

The post of Travelling Inspector of Emigrants was revived in December 1903 and Military Assistant Surgeon H. A. Young was appointed to it. This officer was employed in constantly travelling along the steamer and railway routes inspecting the arrangements made in regards food and water supply and the general care of the coolies.

ANTI MALARIAL CAMPAIGN IN DINAKHUR

The following account of an attempt to grapple with malaria in the delectable district of Dinakpur deserves further notice than it will get in the pages of this blue book. We quote the following account.

"The object of the campaign was the reduction of malaria by the destruction of mosquitoes especially in their larval stage and of the malarial parasites in human beings by the administration of quinine."

To secure the first object, three gangs of coolies were employed, viz. a town gang, a tank gang and a kerosene gang. The duties of the town gang consisted in clearing private compounds, clearing jungle and cutting and levelling drains. During the dry months of the year about 20 men were constantly employed on this work. Most of this gang were transferred to the water gang during the rains, owing to the large number of pools etc., requiring attention. In all, 670 private compounds and 250 patches of jungle received attention at the hands of the town gang. With the rubbish removed, 500 ditches and 128 unused ring wells were filled up. The attention of the tank gang was devoted to the clearing of the numerous tanks and other collections of stagnant water, and, where possible, to draining them. The Kachru and Gagra nullas, which were hot beds of mosquitoes also received constant attention, the edges of the Gagra for a length of 3 miles being kept clear. Some of the tanks were also re-excavated by their owners.

All patches of stagnant water were regularly kerosened once a week or 10 days by the kerosene gang. Owing to the large number of pools which formed after the rains it was not found possible to treat all of them satisfactorily. About 600 gallons of oil were expended in the month of August alone, and yet all the places were not free from larvae. A sum of Rs 707 was spent on oil during the year 1909.

In addition to the above mentioned gangs, two *moustiquiers* (increased to five in the rainy season) were employed to direct the work of the gangs and to search for larvae, which were examined and classified by the Assistant Surgeon.

Some 200 *Eucalyptus* plants and some packets of seeds were obtained from the Royal Botanical Gardens at Calcutta and planted round the Julum Sagu and elsewhere in the town. In spite of great attention, the plants soon died and the seeds failed to germinate.

The second object of the campaign was aimed at by the free distribution of quinine as a prophylactic and in the systematic treatment of malarial fever. This duty was assigned to the Hospital Assistant, who was assisted in the distribution of the drug by 12 quinine agents. The Hospital Assistant regularly visited all the schools in the town and treated those of the pupils, who were found suffering with enlarged spleens, with sugar coated tablets of the drug. Some of the boys were also induced to take the drug as a prophylactic. In all 5510 five grain tablets were distributed in the schools. The *hats* were also regularly visited and 66740 tablets were distributed at them. Towards the latter end of the year the distribution of *hats* was discontinued as it was found that very little of the drug went to the actual inhabitants of the town, most of the people attending the *hats* being inhabitants of surrounding villages and also that much of it was sold. A very large quantity of the drug (218 850 tablets) was also distributed to the people by house to house distribution and measures were taken to popularise its sale by putting up the tablets in glass tubes, 20 in each, and selling them at 2½ annas per tube. Only a small quantity of the drug was sold in this manner, although the vendors were allowed a commission of 20 per cent.

The advantages to be derived from the use of the drug were also widely advertised by means of leaflets and placards.

It is too early yet to draw any conclusions as a result of the year's work. The following figures, however, show that there was some improvement in the health conditions during the year 1909 —

(1) Fevers accounted for 59.47 per cent of the total mortality in 1909 against 81.29 of the previous five years.

(2) 37.13 per cent of the total admissions in the Sadra Hospital was due to fevers in 1909, against 38.70 during the previous five years.

(3) 28.11 per cent of the out-door attendance at the hospital was due to fevers in 1909, against a quinquennial average of 34.35.

(4) 34.53 per cent of the child population were estimated to be infected with malaria in January 1910, against 36.47 in January 1909.

"The Civil Surgeon Capt D. P. GILL, does not think that the measures have succeeded absolutely, the number of anophelines have decreased appreciably, but 'it is very difficult to find breeding places which were cleaned and thoroughly kerosened to be still swarming with larvae'. Difficulties in even quinine distributions were met with the ignorance and prejudice of the people is still great. Finally the Committee could only recommend a continuation of the operations on a reduced scale."

This is certainly disappointing but only support the opinion we have often stated that anti malarial operations in India are not so easy as the published experiences of other countries might lead one to expect.

Anti malaria operations were also carried out in the Nya Basti of the town of Jalpaiguri, but on a much smaller scale. The campaign was conducted on the same lines as previously, except in the matter of screening with wire gauze which was not resorted to owing to the objections raised by the European residents on the score of discomfort in the hot weather and general stuffiness at other times. Quinine disinfection by the free issue of the drug and the destruction of larval mosquitoes by cleaning and levelling drains, jungle cutting and filling up of pits and by spraying breeding grounds with kerosene oil, were the objects aimed at by the campaign.

Quinine in the form of 5 grain sugar coated hydrochloride tablets for adults and in the form of the trimate mixed with sugar for children was distributed free of charge to the inhabitants. More than one third of the people however declined to take it owing to a deep rooted prejudice against its use.

Spraying with kerosene was systematically carried out both in the area covered by the experiment and as far as possible in the European quarter.

The major portion of the grant was however spent on the filling up of pits, etc. Before the inception of the experiment the Nya Basti was riddled with borrow pits and excavations. A great many of these were filled up or levelled in 1908. During 1909 all the rest were filled up except 3 of any magnitude which can be easily dealt with by spraying. Many foci for the dissemination of mosquitoes still remain in the *litcha* wells that exist in practically every holding in the *basti* and the Civil Surgeon considers that these constitute a far greater danger than the more obvious collections of water in natural or artificial depressions.

The whole area of the *basti* was kept free of jungle and the drains were kept clean. Some additional drains were also excavated.

The Civil Surgeon remarks that the experiment having only been commenced on proper lines in December 1908, it is too early to make any pronouncement.

A fair idea of its benefits can, however, be gleaned from general facts. For instance, during 1909 there were 519 cases of fever in the area, against 668 during 1908. There is also no doubt that the people are beginning to appreciate the value of anti malaria measures. The experiment has had a distinct educational effect on the mind of the conservative villagers.

So much for the very admirable report of Major Wilkinson but in addition there is a valuable Supplement which contains many papers, which should have been sent to us for publication instead of being more or less buried in an Annual Report, though we did publish a few of them. These reports date from 1906, and it is obvious that they should have seen the light three or four years ago.

The first of these papers is a short note by Capt C. A. Goulay, I.M.S., on what appears to have been a sharp well managed outbreak of pneumonic plague imported by a river steamer. This note is headed as an outbreak of "Epidemic pneumonia." Capt Goulay also reported on an outbreak of plague in Mymensingh district and on cholera in Bogra. The most interesting part of the latter report is certainly worth reproducing. It shows lamentable ignorance and a lamentable want of public spirit on the part of the leading people in the district (the italics are ours) —

"There is another factor in the spread of cholera in Eastern Bengal which requires attention. I have repeatedly in different districts been informed that some fakirs and kabirays have a system of black mail on the inhabitants. They demand money to prevent a village getting cholera when the epidemic has broken out, and if not satisfied they deliberately infect the wells. I have heard this stated in different districts by more or less educated men. In Shariatkandi, the writer constable told me that they know of more than one man who acted in this way during the 1905 epidemic, but owing to the difficulty of getting legal evidence could not prosecute."

I think the lines on which to help the people are—

- (1) to teach them to avoid river water at least during the months of September, October and November, and to encourage the use of wells, in most cases, it must be the simple ring well,
- (2) to put the means of stopping an outbreak into their own hands.

With regard to the avoidance of river water in cholera times I believe that the people to some extent already recognise the danger and thus we want to push on a plan which experience is slowly teaching them.

With regard to wells, I think it is quite possible to push on the use of ring wells and this again would be working along with the teaching of experience. I recognise that a ring well is not an ideal supply, but I believe it is the best that the people can afford. They require to be taught, however, that much depends on the site of the well. The main fault I have found, is its proximity to the local centre of pollution, *i.e.*, the *basti* compound. We want to teach the people to make their wells in the field, at least 20 or 30 yards from the *basti*. The other chief fault is that the washing of bodies and clothes goes on at the well head. We want to teach them to carry water away from the well before they start washing.

With regard to the means of prevention of the spread we want to teach them the use of permanganate for disinfecting their wells and the use of boiling water for personal safety.

The question is how are these to be attained. From my experience of the villagers I am convinced that the time has come when we can take advantage of their education to communicate simple sanitary facts on leaflets. The leaflet, which should be printed in good simple Bengali, could with little trouble be distributed to the *chaukidars* on *bazari* day. These would be carried back to the villages where there is certain to be somebody who can read them. A *chaukidar* beat consists of 80 or 100 houses, so that the distribution would be satisfactory.

Lt Col E. A. W. Hall, I.M.S., submitted two very interesting and careful reports on an outbreak of Beri beri in the Sylhet Jail which outbreak might well be re-examined in the light of the recent work on the polished rice causation of this mysterious disease, the more so as the rice issued was made from paddy (local paddy we presume) in the jail, yet the cases only occurred in the rice eaters, the majority, and no cases in the minority of wheat eaters.

Many other interesting papers on rats on plague on Water Supply followed by Capt Goulay and Capt Foster Reaney I.M.S. The latter officer also gives a very interesting note on Epidemic Dropsy in the Dacca Asylum, in continuation of Colonel Neil Campbell's report which we published at the time. Major Delany's report which we published also reappears.

There is also a valuable note by Dr C. A. Bentley on quinine prophylaxis. We commend to the attention of all interested Major Wilkinson's revised scheme and distribution of quinine by Government which we have not here space to quote in full and which would be spoiled by extracting.

We have quoted enough to show the very valuable nature of Major Wilkinson's report. It is certainly one of the most interesting and valuable reports we have ever read. The increased attention to sanitation is of itself almost sufficient to justify the partition of the two Bengals. Never before has such attention been paid to the health of the inhabitants of Eastern Bengal and Assam.

MADRAS SANITARY REPORT, 1909

THERE is not much of special interest in the Madras Sanitary Report which will bear extracting. The most interesting part deals with the history of the chief diseases. Cholera was less prevalent 11 per mille against 3.9 in the previous year, usually cholera is most prevalent during the monsoons June to December, but in 1909 the mortality was heaviest during the inter monsoon period January to May. We read that "Permanganate of Potash was largely used in sanitizing sources of water supply, chiefly in places affected with cholera and has been found to be very efficacious in combating cholera. In Madras however, the District Medical and Sanitary Officer reports that its usefulness as a disinfectant is not very satisfactory owing to the fact that in several places the water for drinking purposes is obtained from running streams."

Smallpox prevailed to a considerable extent in 18 districts, and Lieutenant Colonel Thomson D.P.H., the Sanitary Commissioner considers that this mortality will not be reduced till vaccination and re vaccination up to 10 years of age as well as registration of births and deaths is made compulsory throughout the Presidency. Plague was not largely prevalent, eleven districts had no cases and the total was only 3,541 deaths.

The following note on Anti malarial Operations is of interest —

(a) In the city of Madras the work of filling up of tanks and unused wells initiated several years ago was steadily proceeded with during 1909, beyond this nothing was done.

(b) Elsewhere the measures adopted consisted in (1) filling up of useless ponds, (2) treatment of cess pools with tar and kerosene oil (3) removal of rank vegetation, (4) free distribution of quinine and cinchona in malarious tracts, and (5) draining low lying lands.

Some of the above precautions were adopted in almost all the malarial centres and places where the danger of this disease was apprehended.

(c) Among the District Municipalities, Coimbatore, Masulipatam, Bezwada and Negapatnam were very prominent in their crusade against malaria. The expenditure for this special purpose was very liberal and compared favourably with that of previous years.

(d) As regards districts with the exception of those where special features with reference to malaria were absent, the advice given by the local medical officers was readily acted upon and all possible precautions appear to have been taken. In Chingleput and Salem nothing was done on the usual plan of want of funds. The District Medical and Sanitary Officer of Coimbatore reports that nothing could possibly be attempted in this direction until a Sanitary Assistant was posted to that district. The District Boards of Cuddalore, Tanjore and Godavari made liberal allotments for carrying out anti malarial operations.

The following remarks on local self government and sanitation are well worth reproducing —

"With the powers already conferred by the Act, sanitation might be greatly improved if its provisions were carried out by Municipal authorities. Although some municipalities have shown praiseworthy energy and enterprise in carrying out the recommendations of reporting officers, the attitude in regard to sanitation, in most cases, I am sorry to remark, is one of apathy. Failure to execute schemes for the improvement of sanitation is usually put down to 'want of funds' and the recommendations of the inspecting officer are put aside endorsed 'to be attended to as funds permit.' In my opinion 'lack of funds' might be read more accurately as 'lack of interest, while in some councils the advance of sanitation is hindered by a want of co operation. Little or no effort is made by a careful distribution of funds to carry out such recommendations as are well within the resources of the municipality. The practice of employing paid secretaries in municipalities to aid the Chairman which was a compromise for the original proposal of having a paid Chairman has in my opinion proved a failure. Paid Chairmen should be employed and should be held responsible for the administration of municipalities and they, in their own interest if not for the good of the public, would look after municipal affairs with zeal. To aid them in their work each Chairman

should be provided with a well organized and fully equipped sanitary staff. The policy of employing honorary Christians is a mistake as they have too many interests to look after and speaking plainly, it would be more than human to expect them to sacrifice their time and energy in looking after municipal affairs which is generally regarded as a thankless work or to safeguard its interest when these clash with their own."

SPECIAL ARTICLE

SMITH'S OPERATION FOR CATARACT

IN our May issue we gave a number of extracts from various American writers on Smith's operation for the extraction of cataract within the capsule. The April issue of *Ophthalmology* (vol vi, No 3) published in Seattle, U S A, has several articles showing the widespread interest in the subject. Prof. Elschning of Prague, wrote an article at the invitation of the Editor Dr. Wuerdemann, he begins by stating that the operation within the capsule is as old as extraction itself and that it was first done in 1773 by Sharp and Richter. The term *expressio lentis* was used by Christensen in 1845 and was much used as all know by A. and H. Pagenstecher, and Prof. Elschning will only admit that Smith's operation differs from that of Pagenstecher "only in minor details."

He goes on to say that he has given the "Expressio Lentis according to Smith" both with and without iridectomy an impartial trial in 69 cases. He places no reliance on "*expressio lentis without iridectomy*" in such cases he experienced iris prolapse in 25 per cent of cases and vitreous prolapse in 17 per cent. (He says his figures in simple extraction with capsulotomy are vitreous loss only 0.7 per cent, iris prolapse only 5.6 per cent.) He practised "*expressio lentis with iridectomy*" in 39 cases and soon formulated the following rule for his own guidance—"Continue the expression only when the edge of the lens appears in the wound on light pressure."

In spite of choice of cases Elschning had 27 per cent of vitreous loss and he regards vitreous loss "under certain circumstances as extremely dangerous for the integrity of the eye, for vitreous opacities are sure to remain. In addition to these "unpleasant consequences" eyes operated on by this method heal slower, he says, and suffer "chorioidal detachment at least ten times as frequently" as those operated on with capsulotomy. He further says that he was forced to the conclusion that the "*expressio lentis with iridectomy*" is suitable only for a small number of cases, and those are the cases in which it can, perchance, be easily carried out."

He then says that to explain "the wonderful results of Smith" there may be a "racial characteristic of minimal adherence of the lens capsule to the fossa patellaris." In conclusion, he considers Smith's operation "an exceptional procedure."

In another article in the same Journal (p 357) Dr. J. W. Wright, of Columbus, Ohio, describes his method of operating within the capsule which he has practised, he tells us since 1879 and two years ago he was surprised to learn that an "East Indian oculist" (so Colonel Smith is disguised) was "removing lens as a new procedure."

Dr. D. W. Greene, of Dayton, Ohio, writes from Jullundar, dated 18th November 1909, to the Editor, *Ophthalmology*—in which he says that "Clark of Columbus was here (Jullundar) for some three weeks and did 150 operations and left highly pleased with his experience and is a Smith man now." Vail did 350 operations with a vitreous loss of less than 5 per cent and is a thorough convert to the Smith operation as I call it. He then goes on to point out that Smith's operation is neither Pagenstecher nor Muhoney's. "No description by Smith's pen or any other can convey much idea of Smith's manipulation and technique with a vitreous loss as low or lower in his hands than by the old method." Dr. Greene then says that the great future of the operation is for immature lenses "for these it is the best and superb operation" (Italics in original). At page 446 of *Ophthalmology*, there is an extract from a paper by R. Sattler of Cincinnati, on his first ten cases and A. R. Baker also reports ten cases which we need hardly further refer to. Dr. C. F. Clark reports (*Arch. Ophthalmol.*, January 1910) on his visit to Smith's clinique, when he did 121 extractions out of 245 done. He states that the operation is not easily understood from any written description, that the peculiarities of the patient do not account for Smith's success, and that when properly performed loss of vitreous is neither frequent nor dangerous. Attention to detail is absolutely essential to success.

The same issue of *Ophthalmology* also gives synopses of Captain Lister and Major Birdwood's articles on Smith's operation. Again in *North West Medicine*, published at Seattle, Washington, U S A, we find another article by Dr. Wuerdemann, of Seattle on Smith's operation 45 cases, in which the writer considers he got better results in 45 cases operated on, *à la* Smith, than in the 1,000 previous operations done by him by older methods, he emphasises the need of the *tactus cruditus*.

An interesting discussion followed, and the remarks of Dr. N. D. Pontius are particularly interesting—

He referred to Jullundar (we may now say Amritsar) as a Mecca, he visited Smith's clinique and saw Smith do 250 cataracts in about ten days and was duly impressed, but points out the difficulty of getting clear ideas as to the ultimate visual results. Dr. Pontius states that he saw some 70 of the patients soon after the operation, and fully 10 per cent of them had "incarceration or prolapse of the iris" and as many had evidence of iritis. After leaving

Jullundar Dr Pontius visited Major Kilkelly's eye hospital (the C J O Hospital, Bombay) and there saw 24 of the cases operated on by Lieutenant-Colonel Smith at the time of the Bombay Medical Congress (see paper by Kilkelly, *IMG*, May 1910). He spent half a day examining there in a dark room. Of Smith's 24 cases the corneal wound was incompletely closed in six cases, in two there was prolapse of iris, in three incarceration of lens capsule, in six cases opaque pupillary membranes, nine cases showed evidence of having had iritis and six had still ciliary injection, in five cases the pupillary membranes prevented a view of the fundus—there was three weeks after the cases had been operated on by Lieutenant-Colonel Smith. He points out what seem to him the great disadvantages of the operation, viz, the loss of vitreous, the rupture of the capsule itself, and the prolapse or incarceration of the iris, the only advantage in the operation à la Smith, is in premature cases, "where the patients greatly needs his vision and being informed of the increased danger consents to take the chance."

In the *Ohio State Medical Journal* (April 15th, 1910) will also be found an interesting discussion on this operation which, as Dr Louis Stricker of Cincinnati (author of the standard work on the *Crystalline Lens*) said "is holding the stage all over the United States and not only there but all over the world." Dr Millette, of Dayton, opened the discussion in a paper, which may be summed up in Dr Millette's words "It is the operation of choice in adult immature cataract." It has its unfavourable side, it needs a trained assistant, it demands a greater degree of skill, there is greater violence done the eye, there is loss of vitreous to be accounted for and a less sightly pupil. Over against this there are four considerations, viz, permanent disposition of the capsule and its contents, no secondary operation, post operative complications practically nil and "better vision" (italics are in the original).

Dr D W Greene demonstrated the operation à la Smith, on which Dr F Allfort of Chicago, opened the discussion and referred to the "Major Smith Colony" at Dayton. Dr Allfort said he would allow Major Smith or Dr Greene to operate on his eye in this method, but no lesser man, and he emphasises the fact that this operation is not for the man who does no more than 25 cataracts a year. Other speakers spoke of these various experiences and Dr D T Vail quoted Dr Greene's rule when the vision at best falls to 20/100 operate, and do it by the Smith method," i.e., in the immature stage.

In addition to the above the June issue of that excellent monthly review of current work "*The Ophthalmoscope*" has many pages devoted to the Smith operation. Dr Derrick T Vail above quoted writes enthusiastically and less critically of his 'impressions gleaned during a

recent visit to Jullundar Smith's clinic." He gives ten useful points of technique in the operation and says "it is to-day the best operation in cases of immature cataract and fortunately it is easy to perform in such cases. It is totally unfit for congenital or juvenile cataracts." For ordinary senile cataracts he avoids the real question by saying "it is the best for the people of India." This is the result of his seeing 1,200 operations in this way.

The *J A M A* (July 23, '10) contains another discussion on this operation, introduced by Dr G C Savage, of Nashville, who claims to have introduced a new 'cataract in capsule' operation, the five steps of which he is at much pains to claim "as mine," Dr D W Greene defended the operation "of that great man, Colonel Smith" (*J A M A*, p 292).

Correspondence

THE STUDY OF PROTOZOOLOGY

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I am writing to direct the attention of Medical Officers who are desirous of studying Protozoology to the excellent facilities afforded by the Imperial College of Science and Technology, South Kensington. The College is in Exhibition Road on the site of the old School of Mines.

The Zoological Section is under Professor Adam Sedgwick F.R.S., and the lecturer on Protozoology is Mr C Clifford Dobell.

Mr Dobell's lectures are divided into two courses the first delivered from the middle of January to the end of March is on Cytology, and the second course from the middle of April to the end of June, on Protistology. The two courses are independent of one another. The special feature of both is the opportunity afforded for, and encouragement given to practical work.

Mr Dobell's reputation is a sufficient guarantee of the excellence of the instruction given and his unrivalled practical knowledge of Microscopic technique, and Protozoological literature is most generously and freely placed at the disposal of students, whether beginners or advanced Protozoologists. The laboratory is very well equipped and reagents and material for work are supplied with a lavish hand. The fees for the courses are purely nominal ones.

My own experience at the College has been such a happy one, and I am under such a great debt of gratitude to Professor Sedgwick and Mr Dobell for their kindness and help, that I feel that I am doing a good service to my brother officers, and others who wish to keep in touch with modern Protozoological knowledge, by informing them of what they may expect at this College.

To any one desirous of further information, I recommend an application for a prospectus to—

The Secretary,
Imperial College of Science and Technology,
South Kensington,
London

I am &c
H J WALTON, F.R.C.S.,
Major, I.M.S.

LONDON,

LIEU COL SMITH'S REPLY TO MAJOR P P KILKELLY

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR—Major Kilkelly's letter in your September issue I would decline to reply to were it not that he introduces new matter.

To answer his letter would be to deal in generalities. I shall get into closer quarters than that with him in an early issue of the *Ophthalmic Record* of Chicago in which those interested in the 23 Bombay cases will be able to see the other side of them.

Suffice it to say that it favours of impetuness on the part of Major Kilkelly to say that I "know little or nothing of the actual results of the bulk of his" (my) "eyework."

The new matter.—Why did Major Kilkelly report the case of this Bombay Paisee at all? When reporting it why did he report only one side of it and that not correctly? This Paisee was a very intelligent man and a man who insisted on giving a full detail of his medical and ophthalmic history before we arrived at any conclusion.

I should be surprised if he did not impart information to Major Kilkelly as freely and as insistently as he did to me. If he did not Major Kilkelly should have asked him for details which I have no doubt he would have got and should have published them with the case. If he had done so the case would not have been worth publishing from his point of view. That he did not publish such details harmonizes with his conclusion that I know little or nothing of the details of my cases, and that he would thus be safe in publishing one side of it.

The facts of the case were as follows—

This patient gave a careful medical history of himself and of his case, and an account of the many ophthalmic hospitals to which he had been for relief south of the Punjab, and of how he had been rejected by them all as incurable. He gave a well marked history of syphilis and of syphilitic iritis and of probable syphilitic fundus trouble. He had had an iridectomy done.

The iris was bound down to the lens all round its papillary margin the result of syphilitic iritis, or from a not unlikely irido cyclitis. His recognition of light was poor. I told him that the prospects of good vision were nil, but that there was a fair prospect of obtaining useful vision and that the risks of operating on such an eye were considerable and told him what the risks were.

He decided to accept the risks. I extracted his lens in the capsule, the ideal procedure in such an eye of all others. There was no escape of vitreous. All went well, he required no after treatment and was discharged quite pleased with his luck. I instructed him when leaving to be very careful about exposure to glare and dust on his way home. He went sight-seeing and returned to me five days afterwards, relating that he put his head out of the window of the railway carriage and got some coal dust in it from the engine. For relief he went to the nearest hospital and got the dust taken out. Atropine was instilled at the same time. After the instillation of atropine he began to suffer excruciating pain which he correctly attributed to the atropine so close was its onset to the use of atropine. When he came back to me it was evident that all his pain was the pain of a fulminating glaucoma associated with an irido cyclitis. I did what I could for him but the case was hopeless. All similar cases are liable to intense intra-ocular inflammation on slight provocation such as foreign bodies in the conjunctiva or the use of atropine which would not affect an eye which had been normal in this way. I regarded it as inexcusable for Major Kilkelly not to have reported the above facts, if it is ever excusable for one man to report another man's cases in this way. Such one-sided reporting is of no scientific or other interest except to the mob. How would it look if all of us who are rivals in practice proceeded to report one another's cases in this way as being of general interest? There would be an end to the dignity and respect which we as a profession command, and medicine would cease to be a career for honourable men.

HENRY SMITH,
Lieut Col, I.M.S.

AMRITSAR,
25th September 1910

SMITH'S OPERATION

To the Editor of "THE INDIAN MEDICAL GAZETTE"

DEAR SIR—In Colonel Kilkelly's reply to Colonel Smith in your issue of September there occurs this paragraph "Colonel Smith has undoubtedly done great work, but he is an enthusiast and such is the magnetism of his personality that he carries his followers with him to the extent that they will even attempt to replace the iris with a strabismus hook or iris forceps." In regard to this I wish to say that I was one of Smith's first pupils and one with whom he took much pains. I cannot speak for others but so far as I myself am concerned it was nothing in Smith's personality or any enthusiasm of his which led me to become one of his pupils. I attended his clinique from time to time for over a year before he let me operate. The only enthusiasm then was on account of what I saw. Further I am not a blind follower of Smith. When operating under his direction in his clinique I of course operated in his way and with his instruments I was learning. But when operating on my own account during the last two years I have not used a strabismus hook to replace the iris. I do not mean to infer that the iris cannot be properly replaced by a strabismus

hook it often is. But I am of opinion that a better replacement can be found, and during the last two years I have been experimenting with different kinds made by myself. Colonel Smith is always ready to receive suggestions that are of value, and I see it stated in the *Ophthalmic Record* of February that he fell in with the ideas of one of his American pupils in this very matter and they tried together different methods of replacing the iris.

So far as my own cases are concerned, occasional prolapse of iris is the only complication which really troubles me or my patients. Others are rare. In my hands Smith's operation is superior to the old in every respect with the exception of a greater tendency for prolapse of iris. When I have perfected my technique in the matter of reposition of the iris I expect to see even this disadvantage disappear. My opinions are not founded on any admiration for Smith but as a result of an extensive experience of his operation. Smith and his followers have good reason for being enthusiastic, and there is no occasion to attribute it to personal magnetism. I do not suppose the possessors of the twenty thousand odd cataracts that Smith has extracted were attracted to Jullundar by personal magnetism either.

Yours faithfully,
W E McKEOHNE

ETAWAH

ASCARIASIS

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR—It was with great interest that I read Lieutenant-Colonel Behr's remarks on Ascariasis in the August number of this Journal. From three years' experience in Nasik, I can endorse all that he says as to the prevalence of round worm infection, at any rate, among the lower castes. It is one of the commonest diseases seen in our outpatient department, and we are in the habit of saying that all the lower caste children in the place are in need of santonin, and usually, for whatever cause a child is admitted to the wards the treatment sooner or later includes santonin, with beneficial results.

As to the symptoms, we are strongly of opinion that there is a definite round worm fever. Our conclusion is based on the facts: (1) that many children are brought to the dispensary complaining merely of "fever," not malarial in type and of being out of sorts. Sometimes a definite history of abdominal pain is also given, and often the abdomen is uniformly distended, there being nothing else obvious to account for the fever, whether or no a history of worms is forthcoming, we immediately suspect round worms, and confirm over drug-nausea by the tongue. In these cases purgatives and santonin entirely dispose of the fever, and worms. (2) In support of this theory we can recall a case in which a child was brought in suffering from hypopyrexia which resisted treatment at the first and for which no cause could be found, until some suggestion of round worms was made. Santonin and purgatives were at once administered, several worms were passed, and the fever promptly abated.

A case in which Casarean Section had been performed (vide B.M.J. Sept 1906) caused me much anxiety by the development of a high temperature after the operation, when the local conditions appeared to be perfectly healthy. The patient at the same time had a puilent discharge from the rectum, but digital examination failed to reveal any abscess. High mercurial irrigation was tried, and a round worm appeared. The treatment thenceforth was simple, santonin and purgatives were given by the mouth, and the lower bowel was washed out. In a few days, fever and discharge had alike disappeared, along with some half dozen or so of worms. This case occurred in Lahore.

I should like to know whether Colonel Behr or any other reader has observed a peculiar appearance of the tongue in cases of round worm infection? We have come to rely, for rapid diagnosis, almost entirely on the tongue which resembles somewhat the "strawberry" tongue of scarlet fever. The dorsum is moderately coated, and pale white large bright pink papillae stand out in sharp contrast and the tip is red and moist. When a child complains of being out of sorts and presents a little fever, a distended abdomen, and the tongue as above described, we have no hesitation in diagnosing worms. Possibly the same appearance is presented in other parasitic infections of the alimentary canal and I shall be glad to learn what has been the experience of others.

Our mode of treatment is to administer at once Ol. Ricini to young children, or Epsom Salts to older subjects, and to give a combined powder of santonin and calomel (in equal parts) to be taken at night. This ensures the necessary purgation before and after the santonin acts on the worms, and the patient returns on the second day to report the passage of several worms and abatement of the fever. The treatment is repeated once or twice more till all the symptoms have disappeared.

I quite agree that the method of cleaning cooking and drinking vessels in vogue amongst the people is probably responsible for a large amount of the ascariasis which abounds. I know a settlement of low caste people, where every woman and child has at some time and usually many times, come to our dispensary for worm powders, and where I have duly seen the pots being "cleansed" in the mud and puddles around the huts. The instructions given in the Canada Hospital are that all such vessels are to be cleaned with wood ashes in abundant supply of which is always at hand in the cook room.

As to the earliest age at which children becomes infected—this is undoubtedly as soon as they begin to crawl. Another point is that such children frequently eat earth, often a mother will diagnose the case for herself merely by this fact she takes this habit as an indication of the presence of worms in the child's alimentary tract, and certain it is that many children who have become the subject of this disease, probably in this manner develop an extraordinary passion for swallowing earth and will make determined efforts to obtain it. It has often necessary to tie up the hands of children in the wards, to prevent them from re-infecting themselves in this way.

The symptoms we have observed to accompany round worm disease have been various. One patient—an adult—was thought to be the subject of biliary colic until a worm was vomited. Purgatives and santonin completely cured her. Another—who was pregnant—was brought to hospital in extremis, suffering from profound toxæmia. She had a history of complete constipation and suppression of urine and there was great distension of the bowels. We could not satisfy ourselves that the condition was primarily a renal one and directed our main efforts to the alimentary tract. We had to ignore the pregnancy and give purgatives, but neither they nor enemata relieved the bowels. Abortion took place and shortly before the end a round worm was vomited. The distension of the bowels increased hourly, and we quite failed to relieve it, and the patient very soon succumbed. Our view is that it was a case of round worm obstruction, but we could not prove it by a *post mortem*.

CANADA HOSPITAL
NASIK,
September, 1910.

Yours, etc
ETHEL LANDON,
M.B. Ch.B. (Edin.)

REMARKS ON ASCARIASIS IS THERE A ROUND WORM FEVER?

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR—Lieutenant Colonel P. Hehir in his interesting article on "Remarks on Ascariasis" in the August number of the *I. M. G.* invites opinions on "Round Worm Fever."

In the out-patient branch of the Civil Hospital here we have on an average about 400 cases of ascari lumbricoides to treat yearly and in about half of these, the fever, Colonel Hehir describes, is a prominent and sometimes the only symptom.

Among the numerous clinical phenomena that arise from the presence of round worms, Colonel Hehir has omitted to mention one that is commonly met in the Deccan and probably elsewhere too and that is pain, combined sometimes also with swelling in one or both knee joints. According to my experience, this usually occurs in children between the ages of 4 and 12 and though sometimes it is present with other symptoms, it just as often occurs as the main and only symptom.

JALNA,
31st August, 1910

Yours faithfully,
C. F. SCHAFFTER,
Civil Surgeon

ASCARIASIS

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—An interesting article by Lieutenant-Colonel Hehir, M.D., F.R.S., has appeared in your columns of the last August issue titled *Remarks on Ascariasis*. He welcomes further correspondence on the subject in your worthy monthly. I wish to write the following as my observations as practitioner at Malvan a growing sea coast town in the Deccan in the Ratnagiri District, a harbour for ferry service between Bombay and Goa.

Whether ascariasis should be accepted as a clinical entity the readers will be the best judge. I am unable to opine. However, Malvan and its mofussil is well known for its infestation by round worms. I dare say "90" per cent of children between one and twelve years harbour a good number of these parasites. Neither are they uncommon amongst adults. Clinically these cases show a round tumid abdomen, with slight enlargement of liver, sluggish listless appearance, tongue slightly furred, with slight enlargement of the papillæ which

clearly showed through the fur, especially marked at the tip. Appetite either lost or capricious marked thirst. Bowels constipated or loose sometimes attacks of pseudo dysentery—discharge of mucous rarely blood, with no marked tenesmus headache nausea vomiting, wandering pains eyes heavy disturbed sleep, grinding of teeth itching of nose. The temperature rises slowly without rigors, to reach 103°. Many such cases come to the practitioner, and are diversely diagnosed as "simple continued fever," "suspected enteric," "dysentery of malarial origin," etc. Microscopical examination of blood or the eggs of these parasites is out of question with most practitioners in India, neither the practitioner is very keen over it. Fortunately an ordinary dose of santonin followed by a purgative brings about a cure. Hence in my practice of two years in this place I have been liberally, though not indiscriminately, following the rule of giving santonin in such cases of undefined fever, and with marked success. Sometimes, however, these cases used to come very late. Unlike the fever described by the writer this fever went on for 10 to 20 days and resembled the Typhoid very much. It was then like Typhoid sine Eruptione, or Typhoid sine Diarrhœa. In late cases inflammatory diarrhœa was invariably present. This differed from Typhoid Diarrhœa in the stools being deficient in bile, and there was no shreds of intestinal mucous membrane and no bleeding. Symptoms of exhaustion soon become apparent. Such cases occur all the year round and in the poorer uncivilised classes. In such cases I used to give stimulants freely and regulate the diet. The patient rallied wonderfully. Then I used to give santonin with unmistakable results. I was not much afraid to administer santonin, as I had seen an eminent physician of Bombay administering it in some cases diagnosed as enteric by other practitioners. Hence I thought of giving a trial to the drug when there was a suspicion of these parasites in my first few cases with not a single untoward result. Generally in all these cases the temperature came down the day after the dose.

Mode of infection—The mode of infection suggested by the writer may be very well founded, but in my opinion, the theory of an intermediate host cannot be so easily given up. Because there is an observation which is much in favour of the latter theory. This observation is made by myself and I do not think it is a fallacy. In Malvan persons taking animal food suffer most, while the vegetarians are remarkably free. Especially the fish eating population carries a good many of these parasites in the intestine. Until now this is inexplicable to me. Will any of your readers oblige me by giving me an explanation? The lower classes, the uncivilised people, most of the fishermen class suffer most.

Number of these parasites—I have personally seen between 200 and 300 worms passed after one dose of santonin in a period of three days, in an elderly gentleman, aged 55. However the average number for Malvan is between 40 to 80.

I concur also with the writer, that obscure symptoms in children, are mainly due to worms and a dose of santonin puts these children to right.

One of the most peculiar clinical manifestation I have personally seen of these parasites except fever, pseudo dysentery etc was of intestinal obstruction. I was a guest to a friend of mine, and his neighbour's child all of a sudden developed peculiar symptoms while the child, four years of age was playing about it got a sudden attack of colic, so that it could not stand erect. It was covered by clammy sweat and was very bad. I examined the child after some time and found on palpation that an inch below the costal arch in the middle line and somewhat to the right side of it there was a localized tenderness. Percussion elicited a tympanitic note above the region in the course of the intestine, the child looked to be in great distress and could not breathe properly. It looked as if there was acute obstruction in the smaller intestine, as it developed nausea and vomiting very early. On looking to the tongue I luckily thought that worm may be the cause of the mischief and hence I gave a dose of santonin and castor oil. Early in the morning a convoluted mass of worm was discharged.

was the biggest worm I had seen it was as big as the little finger of a man. The total number of them discharged was between 30 and 40. The child, I know, is now enjoying very good health.

I have put my views about "Ascariasis" before the readers and I would welcome any explanation as regards the greater prevalence of these parasites in fish eating populace, civilized or otherwise. Through your worthy columns I am quite unable to write about my experience here as I am a new comer to this place. In the end I leave to my readers to judge whether "Ascariasis" should be a clinical entity.

Yours, etc,
S. V. SAVANT, M.B.

State Surgeon, Dewas, G. I.

INTESTINAL OBSTRUCTION CAUSED BY TAPEWORM

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—Will you kindly publish in the *I M Gazette* the clinical record of the following case of acute intestinal obstruction by tapeworm

Gobia, a sweeper, aged 30 years, was brought to hospital late in the evening of 22nd April 1910, complaining of great pain in and distension of abdomen and inability of passing either gas or faecal matter. On looking at the patient his abdomen was found intensely swollen and very tympanic on percussion all over. There was great dyspnoea and some cough. The face had an anxious pale and worn out appearance. The outlines of the coils of intestines were visible through the abdominal wall. The patient stated the trouble came three days ago rather suddenly after a meal and he had not passed anything per rectum for the last three days. There was no vomiting present. A large four pint enema of soap and water was given after the condition was diagnosed to be intestinal obstruction, but it brought out nothing except a very few small, round and hard scyballe with no relief to the patient. A second enema was given in the night and a third one early next morning with no better result. The abdomen was then opened by Dr H J Garrod, Civil Surgeon below the umbilicus by a four inch incision. About a pint of clear pale yellow serous fluid came out of the peritoneal cavity, probably an exudation from the intestines which were swollen, full and congested all over. No obstructing band or adhesion or other source of obstruction was found anywhere, although nearly the whole of the S I was explored and drawn out in portions. The ileocaecal valve presented nothing unusual and the four pint enemata had shown the large intestine to be quite free. As it was thought necessary to relieve the patient the lowest coil of the S I was tapped with a trocar and cannula and about eight pints of a greenish coloured thick fluid was drawn out. The first portions of the fluid contained solitary pieces of a tapeworm and then the body of the worm was forced out by the fluid doubled up through the cannula. The worm was then pulled out by the hand until the smallest pieces of the head side were removed. The head itself was, however, not seen. While exploring the gut at one spot a white, beaded, raised linear body was seen embedded in the muscular wall of the gut for about two inches and a long distance from the punctured spot. Possibly it was the head of the worm stuck so deeply in the wall of the gut. On measurement the whole worm was found nine (9) yards in length. The pieces as they came out were slightly mobile and active. On examination it was found to be *T. Signata*. An improvised Parry's glass tube was then inserted into the gut and kept into position by a purse string suture. The peritoneal and muscular wound was closed except for the exit of the glass tube, to which a rubber drainage tube was attached and kept in a basin of Boric lotion which became coloured and foul from discharge of faecal matter. The second day after the operation the patient passed some flatus per anum and the third morning he had a good motion the same way. Feeling himself quite relieved the third night the patient changed his posture to one side and coughed forcibly several times which somewhat disturbed the dressings. I therefore, immediately took the patient to the operating table and opened the abdominal wound again and irrigated it thoroughly with hot salt solution. The coils of the intestine were adherent to the abdominal wall and to each other in the neighbourhood of the

cured on 2nd June 1910. He has been seen twice since and now looks quite a different man.

I have the honour to be,

Sir,

ORAI,

Your most obedient servant,
PRAHLAD NARAIN NATHUR,
Asst. Surgeon, Civil Hospital,

28th June, 1910

Orai U P

THERAPEUTIC NOTICES

A DUST PROOF MEDICINE CASE

WHEN attending a patient in places remote from dispensing conveniences there is often a tendency for a physician's medical outfit to become filled with dust or sodden with rain.

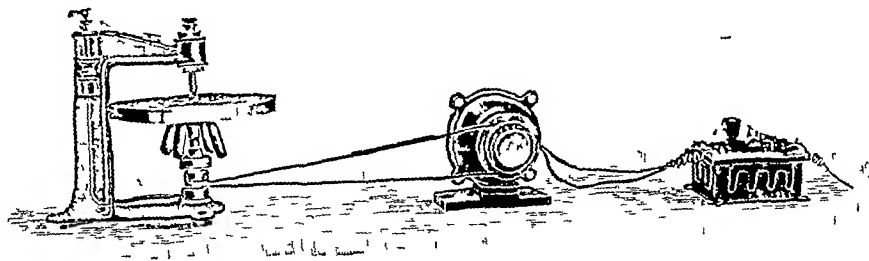
A new case introduced by Burroughs, Wellcome & Co., London effectually disposes of this annoyance. The 'Tablon' Saddle Case, which is illustrated above, is impervious to dust and sand and will also protect its contents against torrential rains.

The fact that Burroughs, Wellcome & Co. possess an unrivalled knowledge of medical equipments, will be quite sufficient to ensure this useful case a good reception among physicians. This firm has provided the medical outfit for every important exploring expedition for the last quarter century, and is always ready to give medical practitioners the benefit of the information and experience acquired during that time.

We have received a very interesting illustrated Catalogue of Surgical Instruments from the well known Paris house, the "MAISON MATHIEU" (113) Boulevard Saint Germain, Paris. Among the instruments illustrated on the list we may call special attention to the Pleural Tube (in case 120 frs.), the abdominal retractor of Dr. Dautignies (20 frs.), Doyen's forceps, Shoemaker's forceps, Prof. Monprofit's retractor, Doyen's operating table a very complete and wonderful thing price 2,000 fr. The proprietors also direct our special attention to the numerous useful inventions of Dr. Dautignies, for example the "Lapostat" or automatic retractor made on same principle as the eye speculum, and Dr. Dautignies' numerous other retractors of various shapes and sizes. Professor Monprofit's "ressort hemostatique" (a metal toningnet) price 40 fr. to 50 fr. A very useful instrument which fits on the index finger for examining the throat is the abaisse langue or tongues depressor, price 4 frs.

We commend the instruments of this well known firm to the notice of Civil Surgeons.

Amongst the various instruments and apparatus that have attracted attention was the Lee Percival Oxygen Generator. This apparatus as devised is an efficient substitute of the old style of distributing oxygen in cylinders, it is quite portable and the generation of oxygen is under perfect control, and can be set aside for any length of time without impairing its efficiency. Also Dr. McNaughton Jones' apparatus for proctoclysis which was introduced to place in the hands of the general practitioner a simple apparatus for the continuous administration of saline fluid per rectum. It is extremely simple in design and the heat may be maintained indefinitely. Also Dr. C. J. Martin's Electrically Driven Centrifuge which is suitable for those institutions where the water supply does not give sufficient pressure to work the Water Driven Centrifuge.



wound. I closed the intestinal opening with Czerny Lembert sutures and the peritoneal and abdominal wounds by interrupted sutures leaving gauze drainage. The upper half of the wound united by delayed first intention and the lower half by granulation, as the stitches cut through the edges on account of forcible and repeated coughing. After the third day the patient passed his motion regularly. During all this time there was neither any pain nor use of tempeatic after the primary operation. He was discharged 13

Messrs Maw Son and Sons send us useful illustrated pamphlets on their Combined Opsoniser and Incubator designed by Dr. Fleming of St Mary's Hospital. It is a very useful and ingenious combination its cost is £6 10 0. The same well known firm also sell other Laboratory apparatus e.g. "Oil baths" (Wright's) "Vaccine Steriliser" (£1) Colonel W B Brunnerman's "Wind Screen" for use with Fieaman's Incubator (10s 6d) also Inoculation syringes and other "opsonic sundries".

Service Notes

THE services of Captain A E Grisewood, I M S, have been placed at the disposal of the Punjab Government for plague duty

MAJOR J C HOLDICH LEICESTER, F R C S, M D, I M S, takes 2 years combined leave on relief by Lieutenant Colonel Green, I M S, from November 7th 1910

THE date of promotion of Colonel C J Bamber, I M S, is gazetted as 12th July 1910

HONORARY LIEUTENANT R F H HANKINS is promoted to rank of Captain, I S M D, dated 4th May

MAJOR G TATE, I M S, has his promotion to Major anti dated from 28th June 1910 to 28th July 1909

SURGEON MAJOR FERDINAND ODFIAINF, Bengal Medical Service, retired, died at Rathgar, Dublin, on 20th March 1910. He was born on 1st May, 1836, educated in Dublin, and took the diploma of L R C S I, in 1853 subsequently proceeding to the fellowship in 1875. He served in the A M D in 1855-56, seeing active service in the Crimea with the Turkish contingent for which he received the Turkish medal and the order of the Medjidie. Entering the I M S as Assistant Surgeon on 10th February 1859 he became Surgeon on 10th February 1871, and Surgeon Major on 1st July 1873 and retired, with a step of Honorary rank on 29th April 1884. He saw no further active service after entering the I M S. Most of his service was spent in political medical appointments under the Foreign Office.

BRIGADE SURGEON ROBERT ROUSE, Bengal Medical Service, retired, died on 20th January 1910. He was born on 6th November 1832, educated at St George's, took the M R C S in 1854 and entered the I M S as Assistant Surgeon on 20th December of that year. He became Surgeon on 20th December 1866 Surgeon Major on 1st July 1873, and Brigade Surgeon on the first introduction of that rank, on 27th November 1879 retiring on 1st September 1885. Most of his service was spent as a Civil Surgeon in the Punjab. The Army List assigns him no war service.

SURGEON GENERAL PATRICK GERALD FITZGERALD, Madras Medical Service, retired, died at Bournemouth on 26th June 1910, aged 90. He was born on 14th March 1820, entered the I M S as Assistant Surgeon on 20th March 1846 became Surgeon, with nearly seventeen years' service on 25th February 1863 Surgeon-Major on 20th March 1866, and Deputy Surgeon General on 16th May 1875, retiring, with an Honorary step, on 1st July 1880. He was an M D Dublin and F R C S I. He served in the Mutiny in 1857-59 and was present in the action at Cawnpore, the defence of the Alambagh, and the capture of Lucknow, also with the Sarai Field Force, in the action at Tulsipur and with the Sagai Field Force, receiving the medal with two clasps.

SURGEON MAJOR JAMES ROSS, Madras Medical Service, retired, died in London on 10th April 1910. He was born on 30th May 1830, entered the Royal Navy as Assistant Surgeon in 1853 served in the Crimea and leaving the Navy after the war, entered the I M S as Assistant Surgeon on 29th January 1857, becoming Surgeon on 29th January 1869, and Surgeon Major on 1st July 1873, retiring on 21st July 1885. He served in the Crimea in 1854-55 in the Naval operations in the Black Sea, being present at siege and fall of Sevastopol, the capture of Kinburn, and of Kerch, receiving the medal with clasp, and the Turkish medal. He also served in the Mutiny, and was present at the affair on the Pun Pun river, receiving the medal.

SURGEON MAJOR THOMAS BEAUMONT, Madras Medical Service, retired, died in Dublin on 8th February 1910. He was born on 23rd May 1829, and educated at Glasgow University where he took the M D in 1857, also the diploma of L R C S I in 1856 and that of F R C S I in 1866. He entered the I M S as Assistant Surgeon on 29th January 1857, becoming Surgeon on 29th January 1869 and Surgeon Major on 1st July 1873 and retired on 20th October 1885. In the latter part of his service he was Residency Surgeon at Hyderabad. The Army List assigns him no war service.

SURGEON MAJOR JOHN MURRAY, Madras Medical Service, retired, died in Edinburgh on 4th June 1910. He entered the I M S as Assistant Surgeon on 23rd July 1855, became Surgeon on 23rd July 1870, and Surgeon Major on 1st July 1873, retiring on 1st December 1881. The Army List assigns him no war service.

CAPTAIN ERNEST DAVID SIMSON of the Indian Medical Service, died of cholera at Naushahra on 22nd July 1910. He was the son of the late Mr Robert Simson, of the Bengal Civil Service and was born on 13th March 1882, and educated at Merchiston Castle School, in Edinburgh where he was Captain of the football team, and a member of the school eleven. In 1901 he proceeded to Edinburgh University, when he took the degrees of M B and Ch B in 1906, entering the I M S as Lieutenant on 2nd February 1907, and becoming Captain on 2nd February 1910. A specially sad feature in connection with his death is the fact that he was just going home to be married, the date being fixed for September, and his passage taken.

Captain Simson had served for too short a time in India to have made any mark in this country, but he will be long remembered in Edinburgh. In many ways he made his influence felt in University student life and always for good. But it is as a famous football player that he is best known. He got his international cup as halfback for Scotland in 1902, and played for his country in seventeen international matches including that against the New Zealand 'All Blacks' being selected for every international match played from 1902 up to the time he left for India. He was also Captain of the Edinburgh University Football Club.

LIEUTENANT COLONEL DHANIBHAI BARJORJI SPENCER, of the Bengal Medical Service, retired on 17th May 1910. He was born on 20th February 1857 educated at the Grant Medical College, Bombay, and took the diplomas of L S A and L F P S G in 1879. Entering the I M S as Surgeon on 31st March 1880. He became Surgeon Major on 31st March 1892, Lieutenant Colonel on 31st March 1900 and was placed on the selected list on 16th October 1905. His whole service was spent in military employment during which he saw much active service: the Soudan in 1885 with the 15th Sikhs the actions of Hashin, Tofiek and Tamai, medal with two clasps and bronze star, Burma, 1886-88, operations of the Second Brigade, medal with two clasps, the North East Frontier of India, Lushai expedition, 1892, and China, 1900, as Senior Medical Officer, Tientsin, mentioned in despatches, *London Gazette* of 14th May 1901, medal. He was the author of "A Record of Indian Fevers some hints on their Etiology Diagnosis and Treatment, with sixteen charts" 8vo, Thacker, Spink and Co, Calcutta, 1899.

LIEUTENANT COLONEL PHILIP DURRELL PANK, of the Bengal Medical Service, retired on 17th May 1910. He was born on 2nd October 1853, educated at St Thomas, took the diplomas of L R C S, Ed and L R C P, Ed, in 1879, and entered the I M S as Surgeon on 31st March 1880. He became Surgeon Major on 31st March 1892, Lieutenant Colonel on 31st March 1900, and was placed on the selected list on 26th October 1905. His only war service was on the North West Frontier of India, in the Mahsud Waziri campaign of 1887. Most of his service was spent under the Foreign Office, in Rajputana, where he had been Residency Surgeon at Jaipur for the past twelve years. He was the author of "A Medico Topographical Account of Ajmere-Rajputana" (with notes by Lieutenant Colonel D French Mullen), demy 8vo, Government Printing Office, Calcutta, 1900.

COLONEL WALTER GAWEN KING, of the Madras Medical Service, retired on 25th May 1910. He was born on 4th December 1851, educated at Aberdeen University, where he took the degrees of M B C M in 1873, and also the D P H in 1883 and entered the I M S as Surgeon on 31st March 1874 becoming Surgeon Major on 31st March 1886 Surgeon Lieutenant Colonel on 31st March 1894, being placed on the selected list on 12th February 1900, and attaining the rank of Colonel on 24th May 1905. Most of his service was spent in the Sanitary Department but for the past five years he had been Inspector General of Civil Hospitals in Burma. He was the author of several pamphlets on sanitary subjects, "The Cultivation of Animal Vaccine, and Experimental Proof of its Origin from Small pox Virus," G W Taylor Madras, 1891, "Sanitary Rules for Prevention of Plague in Municipalities" Superintendent, Government Press, Madras, 1903 8vo "The Plague Inspector's Manual, Madras," Thacker, Spink & Co, Calcutta, 1902, second edition, 1907. The Army List assigns him no war service. He received the C I E on 3rd June 1899.

LIEUTENANT COLONEL EDULJI PALANJI FRFNCHMAN of the Madras Medical Service, retired on 1st April 1910. He was

born on 21st November 1835, educated at the Grant Medical College Bombay, and took the diplomas of L M S Bombay, L R O S, Ed., and L F P S G. all in 1878, entering the I M S as Surgeon on 31st March 1879. He became Surgeon Major on 31st March 1891, Lieutenant Colonel on 31st March 1899, and was placed on the selected list on 7th April 1907. The Army List assigns him no war service. Most of his service had been passed in Burma where he had been for several years Inspector General of Prisons, and acted last year Inspector General of Civil Hospitals.

LIEUTENANT COLONEL RICHARD JAMES, of the Madras Medical Service retired on 29th April 1910. He was born on 29th April 1855, educated at Edinburgh University, where he took the degrees of M R C M in 1878 and entered the I M S as Surgeon on 31st March 1879, becoming Surgeon Major on 31st March 1891, Lieutenant Colonel on 31st March 1899, and reaching the selected list on 18th June 1907. He had been Dublin Physician, Travancore, for some years past. The Army List assigns him no war service.

LIEUTENANT COLONEL SARKIES CARAPIET SARKIES, of the Madras Medical Service retired on 6th May 1910. He was born on 4th September 1856, educated at St Thomas, took the diplomas of M R C S L R O S, Ed., and L R O P, Ed., in 1873, and entered the I M S as Surgeon on 31st March 1879 becoming Surgeon Major on 31st March 1891, and Lieutenant Colonel on 31st March 1909. His last appointment was that of Civil Surgeon, Bellary. The Army List assigns him no war service.

LIEUTENANT-COLONEL RUSTOMJEE HORMASJEE CAMA, of the Madras Medical Service retired on 13th July 1910. He was born on 15th April 1847, educated at the Grant Medical College Bombay, took the diplomas of L M S, Bombay in 1878, M R C S and L R O P, Ed. in 1879 and entered the I M S as Surgeon on 31st March 1880, becoming Surgeon Major on 31st March 1892 and Lieutenant Colonel on 31st March 1900 and was placed on the selected list on 7th April 1908. Most of his service had been passed in Military employment. He served in Burma in 1885, and was present at the occupation of Mandalay and Bhamo, receiving the medal and clasp, and in the North East Frontier of India, in the Chin Lushai expedition of 1899-90, clasp.

LIEUTENANT COLONEL WINTHROP BENJAMIN BROWN, of the Madras Medical Service, retired on 17th May 1910. He was born on 6th July 1855, educated in Dublin, took the diplomas of L R C S I L K Q C P, and L M Combe, in 1879 and entered the I M S as Surgeon on 31st March 1887 becoming Surgeon Major on 31st March 1892, Lieutenant Colonel on 31st March 1900, and reaching the selected list on 30th June 1908. He received a C I E on 31st December 1898. He held the appointment of Principal of the Madras Medical College, but had been on furlough for two years prior to his retirement. The Army List assigns him no war service.

LIEUTENANT COLONEL WILLIAM SYMONDS PERCIVAL RICKETTS, of the Bombay Medical Service retired on 10th June 1910. He was born on 1st November 1863, educated at Edinburgh University, where he took the degrees of M B O M in 1886, and entered the I M S as Surgeon on 30th March 1889 becoming Major on 30th March 1901 and Lieutenant Colonel on 30th March 1909. He served in East Africa in 1902-03 in the operations in Somaliland, receiving the medal with clasp.

SURGEON MAJOR JOHN WILLIAM STRONG, Madras Medical Service retired died on 18th February 1910. After taking the diplomas of L R O P, Ed., and L R C S I, in 1864, he entered the I M S as Assistant Surgeon on 1st October 1866 becoming Surgeon on 1st July 1874, Surgeon Major on 1st October 1878, and retiring on 23rd November 1885. The Army List assigns him no war service.

COLONEL JOHN ADAMS CUNNINGHAM, I M S, has been appointed Inspector General of Civil Hospitals in the Central Provinces, *vice* Colonel Pat A. Weir I M S, retired. Colonel Cunningham is a well known Civil Surgeon in the Punjab, having served in Delhi, Lahore, Simla, &c., and is a brilliant stone operator. He entered the service on April 1881, having taken the degree of M D, M C H, in Queen's University, Belfast.

COLONEL PAT A. WEIR retired on 26th October having entered the service in September 1875. He served for many years in the Foreign Department, and became I G C H in the Central Provinces in October 1908. He had a distin-

guished career as a Student at Guy's and at Aberdeen, having taken the highest honours in Natural Science and Surgery.

CAPTAIN H. FALK, M B (Camb.) has passed "with distinction" the Examination of the London School of Tropical Medicine.

MAJOR E. H. DEARE I M S, who is at home on study leave, has taken the diploma of M R O P.

LIEUTENANT COLONEL C. J. H. BELL, I M S, Inspector General of Prisons, Burma, is appointed a Member of the Education Syndicate, Burma, *vice* Lieutenant Colonel E. P. Frenchman, I M S, retired.

COLONEL W. A. CORKERY, I M S, has been appointed P M O, 3rd (Lahore) Division, and Colonel T. J. O'Donnell, I M S, is appointed P M O, Karachi Brigade, *vice* Colonel Corkery.

MAJOR E. J. MORGAN, I M S, Civil Surgeon of Sitapur, has been granted privilege leave.

THE date of the promotion of Colonel W. P. Denny, I M S, is gazetted from 16th June 1910.

On the return of Major Black, I M S, as Chemical Examiner, Bengal, Captain Owen, I M S, took one month's privilege leave. Major Black will succeed Lieutenant Colonel D. St. J. Grant, I M S, at the Lahore College.

His Excellency the Governor in Council is pleased to appoint Major E. F. Gordon Tucker M S, B S, M R C P (Lond.), I M S, to act as Professor of Botany and Biology, Grant Medical College, in addition to his own duties, during the absence, on leave, of Dr S. A. Powell, M B, M Ch, or pending further orders.

CAPTAIN J. F. JAMES, I M S, Civil Surgeon, Jalpaiguri, got 21 days privilege leave in September.

COLONEL T. J. R. LUCAS, British Service, to be Principal Medical Officer, 1st (Peshawar) Division, *vice* Colonel C. H. Bertson, I M S, vacated.

COLONEL W. A. QUAYLE, I M S, to be Principal Medical Officer, Abbottabad and Sialkot Brigades, *vice* Colonel T. J. R. Lucas, British Service, transferred.

COLONEL G. W. P. DENNIS, I M S, to be Principal Medical Officer, Aden Brigade, *vice* Colonel W. A. Quayle, I M S, transferred.

LIEUTENANT C. H. SMITH, I M S, is appointed a "Specialist in Advanced Operative Surgery," 2nd (Rawal Pindi) Division from 10th July 1910.

MAJOR G. M. SMITH, I M S, made over charge of the Shahpuri District Jail to Captain W. W. Jendwine, I M S, on 5th July 1910.

CAPTAIN H. WATTS, I M S, District Plague Medical Officer, Hoshnarpur, made over charge of his duties to Military Assistant Surgeon H. W. V. Cox, Civil Surgeon, Hoshnarpur, on the forenoon of the 2nd July 1910 and proceeded to the Central Research Institute, Kasauli, for training in clinical bacteriology and technique.

THE services of Captain H. Ross, I M S, Assistant Plague Medical Officer, Jullundur are replaced at the disposal of the Government of India in the Home Department with effect from the date on which he relinquishes charge of his duties.

THE services of Captain H. Ross, M B, I M S, are placed temporarily at the disposal of the Government of the United Provinces.

THE Home Department notification No. 944 Sanitary, dated the 17th May 1910, is hereby cancelled.

THE services of Captain A. F. Babon, M B, I M S, are placed temporarily at the disposal of the Government of the Punjab for employment on plague duty.

LIEUTENANT COLONEL R. JAMES, I M S, retired, with effect from 29th April 1910.

THE following Captains to be Majors, I M S, with effect from the 27th July 1910 —

Thomas Shepherd Norris
Herbert Joseph Richard Twigg, M B

THE following Lieutenants to be Captains, I M S, with effect from 27th July 1910 —

Hugh William Acton
Vivian Bartley Green Armytage
Arthur Norman Dickson, M B
Alexander Glover Conliffe M B, F R O S E
Alexander James Hutchinson Russell, M B
Robert Ernest Wright, M B
Dewan Hikmat Rai M B
William Hunter Riddell, M B
Frederic Allan Saker, M B
Arthur Waltham Howlett M B
Arnold Newill Thomas M B
Francis Shingleton Smith

ON the batch of 28th January 1893 no less than ten received accelerated promotion from Captain to Major

MAJOR F O'KINEALY I M S, Civil Surgeon, Simla (East), is granted privilege leave for one month and eleven days with furlough for two months and three days in continuation, with effect from the 8th August 1910

LIEUTENANT COLONEL H B MELVILLE, M B, I M S, Civil Surgeon, Simla (West) is appointed to officiate as Civil Surgeon Simla (East) during the absence, on leave, of Major F O'Kinealy, I M S, or until further orders

MAJOR C DUFR M B, F R O S, I M S, Civil Surgeon, Myingyo is appointed to officiate as Civil Surgeon, Simla (West), during the deputation as Civil Surgeon, Simla (East), of Lieutenant-Colonel H B Melville, M B, I M S, or until further orders

THE services of Captain A W Take F R O S I, I M S are placed permanently at the disposal of the Government of Bombay, with effect from the 10th June 1910

THE promotion of Major R F Baird, I M S, to that rank is antedated from 23th January 1910 to 28th July 1909, that is he receives the 6 months' accelerated promotion

LIEUTENANT COLONEL F O REEVES I M S, is promoted to be Colonel I M S, vice Colonel W G King, C I E, from 25th May 1910

THE following Captains are promoted Majors, I M S, with effect from 28th July 1910 —

J U H Leicester, F R O S
H Innes
W S Willmore
A G Wilton
L T R Hutchinson, M D
E L Ward
J N Walker
V H Roberts, F R O S, Ed
T S Ross

That means that all the above officers, whose Commissions are dated from 28th January 1899, have received 6 months' accelerated promotion. Of those who have not been thus promoted there are only eight left (one is J D S O)

CAPTAIN A W O YOUNG I M S, Officiating Deputy Sanitary Commissioner, made over charge of the first circle on the afternoon of the 31st August 1910 and his services were replaced at the disposal of the Government of India, Home Department, with effect from the 3rd September 1910

CAPTAIN G I DAVES Officiating Civil Surgeon, Badaun, to officiate as Deputy Sanitary Commissioner 2nd Circle, with effect from the 1st September 1910 and to hold charge of the current duties of the office of Deputy Sanitary Commissioner, 1st Circle, in addition to his other duties, with effect from the 3rd September 1910

LIEUTENANT COLONEL E JENNINGS, I M S, Superintendent of the Central Prison Ferozpur, was granted one month's privilege leave from 10th October and Captain H R Nutt, I M S, Civil Surgeon acts as Medical Officer, Mr H G Smith, Assistant Magistrate taking over the duties of Superintendent of the Central Jail

ON return from the Central Research Institute, Kasauli, Captain H Watts, I M S, resumed charge of the office of District Plague Medical Officer, Hoshiarpur, on the forenoon of the 2nd August 1910, relieving Military Assistant Surgeon H W V Cox, Civil Surgeon, Hoshiarpur

CAPTAIN W J POWELL, I M S, on return from leave, joined the Central Provinces Jail Department

ON return from leave the services of Captain W J Collinson, I M S, are placed at the disposal of the Commander in Chief

THE King has accepted the resignation of Captain W M Thomson, M B, I M S, with effect from 19th July 1910. He has been on leave out of India since 1st September 1909

CAPTAIN R STEEN, I M S, Civil Surgeon of Mainpuri, privilege leave, combined with furlough and 4 months' study leave, for a total period of twelve months, from the 13th October 1910

CAPTAIN W E McKECHINE, I M S, has been on leave on medical certificate from 16th May to 30th September 1910, inclusive

ON return from leave Major R F Baird, I M S, is posted to Mainpuri

CAPTAIN C G SEYMOUR, I M S, 2nd King Edward's Own Gurkha Rifles to hold civil medical charge of Dehra Dun, in addition to his military duties, vice Lieutenant Colonel L G Fischer, I M S

LIEUTENANT COLONEL J MORWOOD, I M S, Civil Surgeon of Shahjahanpur U P, has been granted short leave and Civil Assistant Surgeon B Sahai acts for him

LIEUTENANT COLONEL S H HENDERSON, I M S, Superintendent Central Jail, Agra, is granted privilege leave for one month and Major A W R Cochrane acts for him

MAJOR A LEVENTON I M S, Civil Surgeon, Dacca, is appointed, on relief by Lieutenant Colonel E A W Hall, I M S, now on leave, to be Civil Surgeon, Dairang

ON being relieved by Major A Leventon, I M S Major H S Wood, I M S, Civil Surgeon, Dairang, is transferred to Rajshahi

MAJOR DELANY, I M S, Major Chatterton, I M S, Major Rait, I M S, Civil Surgeons in Bengal, have been granted privilege leave during September-October

LIEUTENANT COLONEL FEARNSIDE, I M S, has returned to the Andamans as S M O, Major J Woolley, I M S, has rejoined his former appointment as Superintendent, Central Jail, Bhagalpur, and Captain W G Hamilton, I M S, goes to Midnapur as Superintendent, Central Jail and Captain F H Salisbury gets one month's privilege leave

THE undesignated Officers of the Indian Medical Service, having completed their courses at the Royal Army Medical College and at Aldershot, have been finally admitted to the service. Their commissions will bear date the 29th January 1910 —

Firmroze Jamsetjee Kolaporewalla
Edward Gilbey Kennedy
Robert Forrester Douglas MacGregor
Arthur Lewin Sheppard
Paul Knighton Gilroy
Joseph Arthur Alexander Kernahan
Maurice Lionel Conliffe Irvine
Ernest William O'Gorman Kiwan
John Valentine Macdonald
George Lawrence Duncan
Anath Nath Pilt
Hubert Alan Hunt Robson
Kalyan Kumar Mukerji
Cecil George Howlett

CAPTAIN H A WILLIAMS I M S, Resident Medical Officer of the Rangoon General Hospital, is appointed to officiate as Superintendent of the Rangoon General Hospital in place of Major C C Barry, I M S, proceeding on leave.

CAPTAIN R KELSALL, I M S, on his return from leave is appointed to officiate as Resident Medical Officer of the Rangoon General Hospital in place of Captain H A Williams, I M S, appointed to officiate as Superintendent of the Rangoon General Hospital.

On relief by Captain H A Williams, I M S, Captain R Kelsall, I M S, is posted to the Civil Medical Charge of the Magwe District in place of Civil Assistant Surgeon I S Churan, transferred.

CAPTAIN R E WRIGHT, I M S, is appointed to hold collateral charge of the Civil Surgeoncy at Mymyo in place of Major C R Peice, I M S, with effect from the 1st September 1910, before noon.

UNDER the provisions of Article 260 of the Civil Service Regulations, privilege leave for eighteen days is granted to Captain H A Dougan, I M S, Civil Surgeon, Meiktila, with effect from the 22nd September 1910, on such date as he may avail himself of the leave.

CAPTAIN L P BRASSFY, I M S, is appointed to hold collateral charge of the Civil Surgeoncy at Meiktila in place of Captain H A Dougan, I M S, proceeding on leave.

UNDER the provisions of Article 260 of the Civil Service Regulations, privilege leave for one month is granted to Major C C Barry, I M S, Superintendent of the Rangoon General Hospital, with effect from the 6th October 1910, on such date as he may avail himself of the leave.

CAPTAIN C R O'BRIEN, I M S, and Captain J F James, I M S Civil Surgeons, E B & A, have passed in Bengali by the colloquial test.

His Excellency the Governor of Bombay in Council is pleased to appoint Mr M B Soparkar, I M & S, to be Honorary Assistant Physician, Jambhedji Jyibhai Hospital, Bombay, for a term of one year.

LIEUTENANT COLONEL K PROSAD, I M S, is appointed on return from leave to the Bhamo District, *vice* Captain O F Mair, I M S.

CAPTAIN S C CHUCKERBUTTY, I M S, is appointed Special Plague Medical Officer, Bassem, from 25th August 1910.

THE following is the result of the examination for 15 commissions in His Majesty's Indian Medical Service, which was held in London in August last.

Marks		Marks	
P B Bharucha	3773	H E Shoritt	3292
J B Tackaberry	3751	R de S B Herick	3282
R W G Hingston	3720	H L Batia	3275
N Davis	3623	W O Walker	3206
R C Clifford	3564	M Purvis	3205
C Newcomb	3472	D M Taylor	3195
L H Khan	3318	V P Norman	3193
T A Hughes	3316		

Mr Bharucha, who heads the list, has had a very distinguished student career and has taken the F R C S of England.

CAPTAIN H FALK, I M S, has passed the examination of the London School of Tropical Medicine "with distinction" in July last.

CAPTAIN W H CAZALY, I M S, has taken the D P H of the Royal Colleges, London.

ON return from special duty with the Duars Committee Major A Leventon, I M S, is posted to Dacca as Civil Surgeon during the absence of Lieutenant Colonel E A W Hall, I M S, on privilege leave, Major H Innes returns to Mymensingh.

MAJOR P C GABBETT, I M S, Professor of Surgery, has gone on two years' combined leave from 26th August, Major W J Niblock, I M S, acts as Professor and First Surgeon to the General Hospital.

CAPTAIN A CHALMERS, I M S, acts for Major Niblock, I M S, as Professor of Anatomy and Second Surgeon.

MAJOR W LETHBRIDGE, I M S, took charge of duties of Agency Surgeon, Wano, on 31st July 1910.

CAPTAIN A B. FRY, I M S, has joined the Bengal Sanitary Department.

CAPTAIN W F FINLAYSON, I M S, Superintendent, Multan Central Jail proceeded on the privilege leave granted to him in Punjab Government notification No 192, dated 14th July 1910, on the forenoon of the 15th August 1910, making over charge of the executive duties of the jail to Lala Kesho Das, Extra Assistant Commissioner.

MAJOR D W SUTHERLAND, I M S, Principal and Professor of Medicine, Medical College, Lahore, has been permitted by His Majesty's Secretary of State for India to convert the period from 1st April to 30th June 1910 of the furlough granted to him in Government of India, Home Department notification No 1186, dated the 24th of September 1909, into study leave.

ON transfer from Amritsar, Captain N S Sodhi, relinquish ed charge of his duties as Assistant Plague Medical Officer on the afternoon of the 5th July 1910 and assumed charge of the office of District Plague Medical Officer, Gujranwala, on the forenoon of the 13th idem, relieving Military Assistant Surgeon W C L Deeks.

CIVIL ASSISTANT SURGEON SHAMRU NATH MISRA, attached to the Agra dispensary at Etawah, to hold civil medical charge of that district, in addition to his own duties, *vice* Captain H Ross, I M S, placed on special duty.

THE Civil Surgeon of Mainpuri to hold visiting medical charge of the Etawah district, *vice* Captain H Ross, I M S, placed on special duty.

His Excellency the Governor of Bombay in Council is pleased to appoint Assistant Surgeon Dwarabhai Edalji Kothavala, I M & S, to act as Civil Surgeon, Surat, in addition to his other duties, during the absence of Captain J L Lunham, I M S, on pending further orders.

THE services of Captain G E Malcomson, I M S, are replaced at the disposal of the Commander in Chief.

Notice.

SCIENTIFIC Articles and Notes of interest to the Profession in India are solicited. Contributors of Original Articles will receive 25 Reprints gratis, if requested.

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to THE EDITOR, *The Indian Medical Gazette*, c/o Messrs Thacker, Spink & Co, Calcutta.

Communications for the Publishers relating to Subscriptions, Advertisements and Reprints should be addressed to THE PUBLISHERS, Messrs Thacker, Spink & Co, Calcutta.

Annual Subscriptions to "*The Indian Medical Gazette*," its 12, including postage, in India Rs 14, including postage, abroad.

BOOKS, REPORTS, &c, RECEIVED —

Memoirs of the Indian Museum Vol II 4
Echinoderm of Indian Museum Pt VI
Paludism No 1 (Simla, Govt. Central Press)
Calcutta Surgical After Treatment W B Saunders & Co
Soliman Fenwick's Dyspepsia, Varieties and Treatment W B Saunders & Co
Medical Jurisprudence R C Ray Calcutta, Hare Pharmacy
E B & A Sanitary Report
E B & A Vaccination Report
U P Civil Hospitals Report
Bengal Sanitary Commissioner's Report
Nagpur Health Department Report
Archdall Reid's Laws of Heredity Methuen & Co
Daniel's and Wilkison's Tropical Hygiene Pts I and II (Baile, Sons and Danielson)
Dr Cooper's Sexual Disabilities of Man (H K Lewis)
Physiological Principles in Treatment (Baillière, Tindall & Cox)
Coldwell's Military Hygiene (Baillière, Tindall & Cox)
Clemesha's Sewage Disposal on Tropics (Thacker, Spink & Co)
Auchdale's Guide to Newer Remedies (J Wright & Co)
Ketbel & Null's Human Embryology (J P Lippincott Co)

LETTERS, COMMUNICATIONS, &c, RECEIVED FROM —

Lt Col H Smith, I M S Amritsar, Capt F A Barker, I M S, Port Blair, Capt W Gillet, I M S, Buxar, Capt Jolly, I M S, Jhilmum, Capt F P Conner, I M S, Gya, Major W Niblock, I M S, Madras, Major Cornwall, I M S, Coonor, Capt Fraser, I M S, Wani, Lt Col Behr, I M S, Lansdowne, Major Foulkes, I M S, Walfair, Dr R N Das, Calcutta, Capt Green Armytage, I M S, (Capt W Iarr, I M S, Jubbulpore, Capt W McKechnie, I M S, Etawah, Capt Stewart, I M S, Dr Landon, Naluk, Major C R Stevens, I M S, Calcutta, Capt L Reynolds, I M S, Sanawar.

Original Articles.

THE TREATMENT OF SYPHILIS AT AIX-LA-CHAPELLE

BY V B GREEN-ARMYTAGE, M B,

CAPTAIN, I M S,

Rangoon

IN tropical climates, where Europeans are, for the greater part, bachelors, where they live together either in *chambers* or messes, where the climate is unfavourable and where fever malarial and otherwise is common, there is probably no more difficult problem that assails us than the efficient treatment of either the immediate or remote effects of an occasional case of syphilis. It may, therefore, be of some value to readers of the *Indian Medical Gazette* if I may give them the benefit of the experience gained in a ten days' visit to Aix-la-Chapelle during last August, for I am well aware that British textbooks speak but cursorily of a method which on the continent of Europe is almost universally extolled as the most efficient treatment for both the early and remote symptoms of the disease. Moreover, it cannot be too well known how perilously close to the brink of disaster stands that patient who has taken the ordinary mercurial treatment perhaps insufficiently or irregularly, but for whom should his leave rules allow Aix holds out an excellent chance of a permanent cure.

Aix-la-Chapelle is an interesting town, situated only about a hundred miles from Brussels. On arrival, it is best for the patient to put up at one of the larger hotels that has the sulphur baths attached to the premises, and to at once call and put himself under one of the local specialists. He will then, after careful examination, be required to carry out some routine of treatment such as follows.—An hour before a light breakfast in bed he will drink two glasses of the waters and an hour after breakfast he will have his hot sulphur bath for twenty minutes. He will then retire to his room again and about half an-hour after a professional rubber will visit him and thoroughly rub him with Ung Hydrag for twenty minutes. After this he dresses and goes down to the Kur gardens, and will there take another glass of the waters before lunch whilst listening to the band. This routine very conveniently fills up the morning and in the afternoon walking or tennis can be indulged in, followed by a final glass of the waters before dinner. The sites of the rubbing are first the legs, then the thighs, then the upper arms, then the chest, and then the back, returning after this to the legs again, and the quantity of Ung Hydrag rubbed in is regulated according to the susceptibility of the patient, at first 5 grammes is rubbed in daily for five days, then when it is seen that the Hg is tolerated the

amount is increased by 1 gramme daily until the tenth day, and from then onwards the rubbing is done twice daily commencing at 5 grms twice daily and increasing the dosage by 1 gramme every fifth day until the end of the first "cure" which lasts six weeks. The total number of rubbings being usually seventy-five.

Such is the line of treatment pursued on the first appearance of the patient, and while he is carrying it out he is requested to abstain from spirits and fresh fruit, to attend with great care to his teeth, to use a gargle, and avoid chills. However, I was assured by the local practitioners and from converse with a great number of the patients I am able to testify that symptoms of mercurialism are extremely rare. Indeed one of the great advantages of this mode of treatment is the fact that should poisoning occur thorough washing off of the mercury and cessation ofunction will rapidly dispel symptoms, a clinical fact which cannot be said for the oral and injection methods, and by some, an explanation of this is thought to lie in the theory that any excess of mercury is excreted by virtue of the sulphur water drunk as a nontoxic sulphide of mercury.

But let it not be thought that our patient has obtained his cure in six weeks, for although he is free to go home, he is requested to come again at the end of six months for a second course of 60 rubbings lasting a month, and at the end of another nine months or a year he again returns for a third course of 60 rubbings, and in the interval of these two courses he is usually advised under his doctor's orders to take at home Iodide of Potash, 1-3 grms in alternate months. A final or fourth course being taken at the end of another year, of 100 rubbings.

We see then from the point of view of time that about twenty weeks is devoted to the treatment over a space of two and-a-half years in surroundings both pleasant and private. Unfortunately we are not able to calculate the amount of Hg absorbed in proportion to the rubbings, but that it is absorbed can be demonstrated by examination of the urine and by the rapid clearing of secondaries and tertiaries which have resisted other modes of mercurial treatment. For example, I saw a medical man who had been treated by an eminent syphilologist in England for severe nitis for two months, who after one week of rubbing was cured of all symptoms or signs of the condition again, at Aix it is not at all infrequent to see cases of Lues maligna, such as cases of spreading and extensive ulceration or of rapid onset of paralysis. These patients rapidly react to unction, and if immediate mercurial effect is necessary often the rubbing is combined with a few injections into the gluteal region of a soluble solution of mercury, such as a 2% solution of the bimodide, dose m 15, which has the dual advantage of being painless, and quickly saturating the patient with mercury. Nor let it be thought

that secondaries alone benefit for the most astounding results may be obtained from the realisation of the fact that tabes and GPI are almost certainly syphilitic in origin, and at Aix some reliance is placed for the prognosis of these cases, on the Wassermann reaction, for if positive it is an immediate call for active treatment, whereas if it is negative on a repeated investigation in 60% the case is not syphilitic or does not call for energetic mercurial rubbing. For instance, I may cite that in September, 1909, I saw a gentleman with very marked ataxia, gastric and rectal crises, Rombergism, and third nerve paralysis who had been advised to go to Aix, and when there in August, I saw him again doing his second course. The rubbings had completely robbed him of all his symptoms and Frænkel's exercises had so improved his gait that any peculiarity was hardly perceptible. His Wassermann had been positive, although a history of syphilis some twenty years previously was doubtful.

Now seeing that inunction is the foundation of the cure, it may be asked what part the baths and waters play, and whether if it were possible to procure an efficient rubber or rubbing the disease could not be equally well treated in India or England as at Aix. As to the latter question, Major French, R.A.M.C.* has amply demonstrated its feasibility in the British army, now that experience and education have dissipated the resthetic bogey of dirt and contagion so long held by the British orderly. But here I would point out to anyone ready to give the method a trial that the rubbing must be efficient and not spasmodic, and, moreover, that of all things the ointment must *not* be rubbed into the flexures. In the East an intelligent patient could rub himself, or still better would it be if he could be rubbed by a syce or ayah after his morning warm bath, which should be made alkaline by adding bicarbonate of soda or sulphurated calcium. Of course, one is met with the objection that the method is dirty and malodorous, but after a short time this passes off and is barely perceptible. Moreover, I would remind you that at Aix none of the rubbers wear gloves or anything on the hands, for the absorption of the mercury from the horny palmar surface is so slow as to be negligible, if the ordinary precaution of washing the hands afterwards is indulged in, and in order to facilitate correct dosage the ointment can be made up ready in oil paper packets containing 5 grms, 6 grms and so on of the mercurial unguent, which is of the strength of 33 per cent.

As to the part played by the waters it is difficult to dogmatise. An analysis shows that they are slightly alkaline and contain sulphur, and it is thought by Dr Liven and others that the alkali loosens the superficial layer of the

epidermis causing them to fall off, and thus it mechanically aids in opening up the sweat pores through which the Hg is absorbed. Whereas the sulphur taken internally acts on an antiseptic and cholagogue,—the bowel excreting any excess of mercury as a non-poisonous sulphide. Albeit, whatever the claims of the waters of Aix, it is obvious that where rubbing and an alkaline bath can be obtained there syphilitics can be treated with confidence in the tropics, without that digestive upset so commonly seen in the oral method and without that pain and danger of severe mercurialism occasioned by the injection method. Indeed, in some parts of Northern India and also in Burmah it is well-known to us that there are hot sulphur springs which, possibly, commercial enterprise in the future may bring into fame as the Aix of the East, whereas at present they are but the Mecca of the rheumatic and the scrofulous.

In conclusion, therefore, perhaps I may briefly summarise the advantages of the inunction treatment as seen at Aix—advantages obtainable *in toto* in the East, were the properties of the above springs but more widely known and made use of, but nevertheless equally obtainable in the bungalow or hospital were the scheme of which I have given details but followed—

1 The results are more rapid, more certain and entail the least risk of unpleasant symptoms.

2 Mercurialism is extremely rare and can be rapidly aborted should it appear.

3 The patient can be seen from day to day if necessary, and the intensity of the cure varied *pro re nata*.

4 Taken away from his usual surroundings, the patient obeys the dictates of a simple life, and gives himself up to the "cure."

5 The small cost of the treatment. Many people labour under the delusion that German Spa treatment is exorbitant, but this is far from being the case at Aix. For inclusive hotel charges, rubbings, baths, and doctor's bills during the course of treatment work out at an average cost of about fifteen shillings a day only.

6 The memorable fact that an occasional course of inunctions taken sooner or later after a brief or irregular treatment by the ordinary methods—and more especially if the Wassermann reaction be positive—is the most efficient method of obviating the gamut of tertiary lesions of syphilis.

GYNÆCOLOGICAL CÆLIOTOMY, GENERAL AND STATISTICAL OBSERVATIONS BASED ON 150 CONSECUTIVE OPERATIONS, PERFORMED IN THE CAMPBELL HOSPITAL, CALCUTTA

By KEDARNATH DAS, M.D.,

Teacher of Midwifery, Campbell Medical School. In charge of Obstetric and Gynaecological Ward, Campbell Hospital, Calcutta.

The following paper is based on an analysis of 150 consecutive cœliotomies performed by me

* Syphilis in the British Army 1809. London. Baile and Demisseon.

in the Gynæcological Department of the Campbell Hospital. The operations include all cases in which the general peritoneal cavity was opened either through a ventral or a vaginal incision. The technique adopted was of the simplest nature, modified, of course, in accordance with financial, racial, social, religious and climatic conditions. With regard to the latter, it may be mentioned that operating, in the summer months (March to September), is very trying for the surgeon. Whenever possible, therefore the operations are performed during the colder months. Indeed patients generally come to hospital during winter, from an idea that wounds heal better in the colder months.

EXAMINATION OF THE PATIENT

The first essential is a correct preliminary diagnosis. In doubtful cases, I make a graphic representation of the pathological conditions found by physical examination, and discuss within myself, the different conditions that are likely to be found. This saves unnecessary waste of time during operation and keeps one ready to meet complications. I think that with care, in by far the majority of cases a pretty accurate diagnosis can be arrived at. I personally make a careful preliminary examination of every patient.

In this way, I have been able to detect in a few cases some associated disease, which escaped the notice of my assistant. The urine is examined in every case. If necessary a catheterised specimen is obtained. In none of my cases was there any evidence of chronic nephritis. In a case of ovarian cystoma (No. 120) sugar (1.2%) was detected in the urine. Two days after operation, no sugar could be detected. No routine examination of blood is made. In two very anæmic patients, with fibromyoma of uterus, a hæmoglobin estimation was made. It is therefore very important to find out the weak organ, which when called upon to respond, might not fail to do so and thus cause disappointment.

Preliminary preparation of the patient—As our hospital patients generally belong to the poor class and enter the hospital immediately after laying aside the burden of exacting household duties and family cares, I invariably give them one or two weeks of preparatory treatment, with absolute rest in bed, nutritious diet, tonics and mild stimulation. They improve remarkably from their depressed and run down condition and at the same time get used to their new hospital surroundings. In very anæmic patients, when operation could be put off for some time, a course of iron and calcium chloride is given with great advantage. Of course, this preparatory treatment has to be dispensed with in urgent cases. Patients are allowed to have their usual daily baths. The bowels are regulated during the week before the operation with the usual white mixture of the hospital. When the motions are at all offensive, some intestinal antiseptics,

such as salol, B Naphthol or small doses of Hyd Subchlor are given for a few days. A thorough evacuation of the bowels is obtained, a day or two before the operation, by a mild dose (six drachms) of castor oil. A soap water rectal enema is given early in the morning of the day of operation.

When there is any *vaginal discharge*, vaginal douches of carbolic or lysol lotion are given for two or three days. *Dieting* during the preparatory period, offers some difficulty. About 80 per cent of my patients are orthodox Hindus. Hindu widows would not touch fish, eggs or meat, and the only food they would take, in hospital, is milk. Married Hindu ladies would take rice, vegetables and fish in addition to milk. Some tact is necessary, therefore, to manage these patients, owing to their religious susceptibilities. They would not think of submitting to any operation, if thereby, they would be compelled to have any food which is considered against their religion. To induce them to come to hospital, I had, very often, to give them a promise that no "forbidden" food would be given. Practically, milk, the very thing that is usually prohibited—is the only food we have to fall back upon. A preliminary cleansing of the field of operation is resorted to, for four or five days before the operation and is entrusted to the senior student girl in charge of the case. The abdomen is washed every morning with soap and water, followed by rubbing of turpentine, which is then carefully washed away by soap and water. For this purpose, a plentiful supply of hot water is kept in a large glass douche and allowed to flow directly from the rubber tube. In *vaginal cases*, the vulva and vagina are daily washed with soap and vaginal douches of carbolic lotion given. The shaving of the area of operation, including pubes and vulva, is usually done the day before the operation.

Preparation of the patient immediately before the operation—This is carried out either by me personally or by my colleague and only assistant, in a room adjoining the operation room or in a portion of the operation room temporarily screened off, so that the patient may not have the distress of witnessing any of the preparations. The first step towards disinfection in those ventral cases, where there is any probability of the vagina being opened and in all vaginal cases, is a thorough cleansing of the vagina. This is done by introducing a bit of soap into the vagina and rolling it round pretty well, first with one or two fingers and then with a bit of sterilised cotton-wool mop in the grasp of a pair of long dressing forceps. The soap is then washed out with a stream of hot sterilized water, the vagina being stretched by a retractor on all sides successively. In this way all the folds are thoroughly cleaned. The process is repeated once more and then a temporary plug of sterilized cotton-wool is inserted into the vagina. The abdomen is then cleaned in every case in the following way. Calvert's Carbolic soap (5%) is

liberally used to form a good lather with the hands, then with sterilized cotton-wool mops. The soap is washed away with hot sterile water. A second similar washing is followed by smearing the whole abdomen with turpentine. The surgeon's (or his assistants') hands and forearms are similarly smeared. The turpentine, on the surgeon's hand and forearms as well as that on the patient's abdomen, is then thoroughly washed away with soap and sterile hot water. This process takes some time but ensures thoroughness. After this the abdomen and the surgeon's hands and forearms are rinsed in absolute alcohol. The sterile operation area is now covered with a sterilized towel. The temporary vaginal plug is now removed, the vagina is douched out with a solution of Hyd Pot Iodid and a sterile cotton plug is placed at the vaginal orifice. The legs and thighs are covered with a sterile drawsheet. The vaginal cases are subjected to this treatment, in case it becomes necessary to make a ventral incision.

Anæsthesia—Chloroform is the anæsthetic, used in all these cases. It is administered with a Junker's inhaler by my resident medical officer. In none of the cases was there any cause for anxiety during its administration. The patient is usually anæsthetized on the same table on which she is washed and is transferred to the operation table after she comes under.

Arranging the Field of Operation—In ventral cases, the operation table (Edebohl's) is covered with a sterilized sheet and the patient is then placed over it. A broad piece of sterilized cloth is then thrown across the patient's thighs immediately above her knees, and carried below the table, the ends are then tied together. This prevents the patient from drawing up her knees, in case she comes round from the anæsthetic during operation. The chest and upper abdomen, the thighs and the sides of the abdomen are covered with sterilized towels, leaving the operation area open. The towels are fixed with each other by four safety pins at the corners of the opening. The patient generally wears a short sterilized flannel jacket. Only during two months in the year, when it is rather cold, a woollen wrapper is laid across the patient's chest and a thick piece of flannel is laid over the legs and thighs, below the sterilized towels and drawsheet. In vaginal cases, the patient is placed in lithotomy position with the pelvis raised about 6". The legs and thighs are covered with sterilized long stockings. The lower abdomen and thighs are covered over with sterilized towels and a large towel with a hole to expose the vulva, is laid over the lower abdomen and allowed to hang. The latter is fixed to the neighbouring towels with safety-pins, the legs are placed on the legs holders.

Surgeon and Assistant—While I am preparing the patient, my only assistant also disinfects his hands as described above. The hand washing is done in running water from the tap. Absolute alcohol is used for the final rinsing of the hands. My assistant gets out the sterilized towels and

drawsheets, from the steriliser and hand them to me to cover the patient. We now put on the sterilized aprons. I put on a cap, which covers the forehead down to the eyebrows. As one perspires very much, this cap is a necessity. Gloves are not used.

My assistant now gets out the instruments from the sterilizer and arranges them on trays scalded with burning alcohol. The instruments are kept dry. In ventral cases my assistant and myself stand on either side of the patient, as is considered most convenient for me. The instrument table is placed to my right within easy reach. I take the instruments from the tray myself. *No one else touches them.* Another small table, to the right of my assistant, carries the box containing the sterilized mops and dressings. The mops, etc. are taken out as required by my assistant, the lid being opened by a special handle by an assistant deputed for the purpose. In vaginal cases, I sit on a stool in front of the patient, at a convenient height for the necessary manipulations. The instrument table is placed to my right. My assistant sits on a stool to my left, with his table to his left. In these cases a second assistant is necessary, whose only function is to hold the retractors. The towel covering the field of operation is now removed and the operation area, as well as our hands, are once more rinsed in absolute alcohol. The operation now begins.

The instruments and dressings are touched by none else but myself, and my assistant and we two alone are responsible for any untoward result from defective aseptic technique.

The Operating Room—The majority of the operations was performed in an ordinary room of the ward with the usual venetians and sashes of warm climates. The floor was made of cement pavement. There was of course no sky-light or special fittings. In this country it is absolutely necessary to arrange for free ventilation even at some risk of contamination from air. The operation table, however, was placed in such a way that there was no direct draught over it from the open windows. Here I may mention that it is extremely trying to have to operate when the external temperature is 95°—100° F and a fan certainly fits the surgeon to do his work much better. But the supposed risk of an contamination prevented me from taking advantage of the fan. The researches of Hunter Robb on the air of the operating room as a possible factor in the infection of wounds are extremely important and his conclusions are well worth reproducing. 1 *Floor* The presence of some antiseptic in the wash-water used upon the floor made a marked difference in the number of bacteria falling on the plates per minute. 2 *Fan* Whether the fan made any difference or not, it would be hard to say. 3 *Walls* The condition of the walls made the greatest possible difference. Almost no colonies were found after the walls had been cleaned. 4 *People in Room* Even with dirty walls, no preparation of the floor and with fan running,

practically no colonies fell on the plates, when no one was stirring around 5 In the summer season when the windows are more or less open, the number of bacteria seem to be more numerous, than in the winter season or when the windows are closed

From a bacteriological analysis of the air of operating room and from practical experience, Robb is convinced that the electric fan can be kept running during the operation, without causing wound infection Further experiments from this standpoint will be necessary before positive deductions can be drawn

During nine months in the year, the temperature is seldom below 70° F, so that all those precautions, necessary in cold climates to keep up the temperature of the room at 72° F are not necessary here

The last 26 operations were performed in the special operating room of the recently built Baker block of the Campbell Hospital This is a well-lighted room, with the north wall made practically glass There is no sky-light, as there is no need for it The walls are lined with glazed tiles and the floor is marbled The room is fitted with two 200 candle-power gas-lamps which give a splendid light at night There is a good wash-hand basin with an elbow action-tap and a knee-action overflow plug

Instruments and their Sterilization—I manage with as few instruments as possible The number of pressure forceps is always a dozen Another half a dozen is added if in any special case it is deemed necessary This practice does away with the necessity of having a record of their number Needles are kept pierced in a piece of gauze The knives are put in along with the other instruments These are boiled in a one per cent solution of carbonate of soda

Ligature and Sutures—I use only Chinese twisted silk for every intra-abdominal condition Nos 0, 2 and 4 are the sizes used They are kept in a small nicked metal box with three spools This is sterilized along with the instruments Catgut (Elwood Lee's) is used only in those cases where the ventral wound is closed in layers Silk is not considered suitable for approximating the fascia and muscles Stout silk worm gut is the usual suture material They are boiled with the instruments These can be bought at gun-makers much cheaper than at surgical stores

Swabs and Pads—I use these instead of sponges

Dressings and Bandages—Absorbent and Boric wool and Boric and Iodoform Gauze (J & J) are the only dressings used For bandages I use a many-tuiled binder (each tuil 4" inches broad) made of Cantonese twill which is very efficient and comfortable

Sterilization of Dressings, etc—There is no doubt that a high pressure steam sterilizer is the best one to use, but as its initial cost is rather high, its use is bound to be limited to hospitals with plenty of financial resources I have one of the Kuy-scheerer manufacture, in use in the

hospital for about two years It is quite worth one's while to invest in one, for the delightful sense of security and confidence obtained by its use Previously I used Schimmelbusch's combined instrument and dressings sterilizer, following the fractional method I had a second dressing box made so that in one, the towels, aprons, drawsheets, etc, are put in, while in the other, go the dressings, swabs, pads and binders

Visitors—One has to be careful about visitors I only allow such persons to witness an operation who could be trusted to be clean and non-interfering They are told beforehand to keep at a respectable distance with their hands in their pockets

VENTRAL COELIOTOMIES

Incision—The median vertical incision, just long enough for the necessary manipulations, is used I try to do as much work by feeling as I can If in any doubt, I enlarge the incision to be able to see what I am doing Out of the 104 cases, the short incision (1½"—2½") was used in 18 cases, the medium (3"—5") in 63 cases and the large (6"—9") in 23 cases

Exposure of the field of Operation—In the absence of any contra-indication the Trendelenberg posture is used In this posture, (1) the parts to be operated upon are perfectly exposed to view as well as to touch, (2) the intestines are kept out of the way without being handled, and (3) the pelvic structures can be seen and handled without the operator or his assistant's head being brought directly over the incision The amount of elevation is regulated, according to the needs of each case It is best to begin the operation at a higher elevation and then to continue it by bringing the pelvis lower down The Trendelenberg posture is not used under the following conditions—(1) In inflammatory cases, where pus is expected, septic matter may thus be carried from pelvis to abdomen (2) In stout women, the weight of fat viscera pressing on the diaphragm may cause embarrassment of respiration and ultimately death I take unusual care to stop all bleeding, examining the whole field for some time after the pelvis is let down This precaution is necessary as the elevated posture tends to temporarily check bleeding from vessels, which may become active when the horizontal posture is resumed I also make sure that no loop of bowels gets incarcerated through a hole in the omentum

Retractors—The fingers of my assistant, protected by gauze, are as a rule used to retract the wound

Illumination—As it is not possible to get good artificial light during the day, I had to postpone the operation, in case the morning, fixed for it, is found unexpectedly dull or cloudy In this series, I had to use artificial light only once and that at night, in a case of diffuse intra-peritoneal hæmorrhage from ruptured tubal pregnancy A common hand mirror is sometimes used for reflecting light deep into the pelvis

Adhesions—1 Omental Light velamentous ones are stripped off with fingers while densely adherent portions of omentum are ligated with fine silk and excised. Special care is taken to check bleeding from cut or torn omental vessels. 2 Peritoneal The ordinary adhesions of a tumour to the anterior parietes are usually separated by pushing the hand with open fingers in between the tumour and the peritoneum and opening and closing the fingers with a shearing motion. But dense adhesions with the posterior peritoneum sometimes cause difficulty. In an ovariectomy (No 107) after the fluid (9½ pints) was evacuated from the accessible loculi, the solid portion of the tumour (8½ lbs) was delivered with some difficulty. A long thin bit of tissue was found on the posterior aspect of the tumour, densely adherent by one end. On examination, a longitudinal rent, 6" long, was found in the posterior peritoneum, in front of the right kidney, reaching almost up to the liver. The rent was stitched up with fine silk. In another case, one of hysterio-myomectomy (No 145), after excision of the tumour, some blood was noticed in the left lumbar hollow. On examination it was discovered that blood was oozing from a long vascular band of adhesion from near the spleen. This had to be tied. 3 Intestinal Loose, membranous or velamentous adhesions are easily stripped. Dense and organised ones are difficult to deal with. In a case of tubercular salpingitis (No 4) the adhesions were very dense and two rents were made in separating them. These were closed with fine silk. Patient did well. 4 Rectal In only one case (No 117) in this series, I had difficulty from this condition. This was a case of a large broad ligament cyst weighing with its contents 13½ lbs which I removed entire. A portion of the rectum, firmly attached to the cyst, was torn away by the sheer weight of the tumour. The rent was closed with some difficulty. Patient recovered without any trouble. 5 Appendicical In three cases the appendix was adherent and in all three it was amputated. 6 Uterine These adhesions are peeled off without much difficulty. The oozing is easily controlled. 7 Vesical The only case (No 81) in which the bladder was injured from dense adhesions with a papillomatous cyst of the broad ligament, is referred to later on.

Ligation of the Pedicle—Silk (intermediate size) is always used for this purpose. I avoid ligating pedicles *en masse*. I tie the uterine and ovarian vessels separately. After the structures are removed, the peritoneal layers of the broad ligament, which fall together in a narrow line, are stitched by continuous fine silk, burying the stumps in either corner. When the pedicle had to be tied *en masse*, I pick up the exposed mouths of the large vessels and tie them separately to make assurance doubly sure.

Hæmorrhage—Actively bleeding vessels are tied immediately after they are severed. To deal with oozing areas deep down into the pelvis, I resorted to tight packing with gauze, in three cases

(Nos 90, 100, 127), without prolonging the operation. I never used the cautery, persulphate of iron or adrenalin.

Irrigation—The peritoneum had to be cleansed in a few cases, by irrigating with normal salt solution, for contamination with septic matter. In one case only it was done for diffuse intra-peritoneal hæmorrhage.

Drainage—I had to resort to drainage in eight cases. In three, it was for persistent oozing deep down in the pelvis. In two (Nos 128 and 143), the broad ligaments were marsupialized and drained for oozing. In one (No 117) it was for injury to rectum. Vaginal drainage was used in two cases (Nos 13 and 29) after Pankhysterectomy. I use washed-out iodoform gauze drain.

Closure of the Incision—With the exception of the cases of ventral hernia and three others, the through-and-through method of suture was adopted.

VAGINAL CÆLIOTOMIES

Incision—In the majority of cases (44), the anterior cul was opened in the first instance. In 21 of these, the pathological condition could be dealt with without further interference. In 12, the posterior cul was opened also, and then the broad ligaments were ligatured or clamped. In 11, the anterior colpotomy was supplemented by hemisection or morcellement of the uterus. Posterior colpotomy was performed in two cases only. The chief danger during the performance of anterior colpotomy is injury to the bladder. I thus injured the bladder in one case (No 26).

Exposure of the field of Operation—For this purpose, good suitable retractors are absolutely essential. I use Jackson's or Simon's posterior retractors with Kelly's anterior and lateral retractors. After the anterior cul is opened, the Peau-Plyon towel is very useful. Whenever possible the uterus is delivered through the incision, fundus foremost. The abnormal conditions of the uterus and appendages are then dealt with. If, however, the uterus is too big to be delivered through the wound, and it is decided to remove it altogether, it is hemisected and each half attached to either broad ligament is brought out through the vagina. When further reduction of the size becomes necessary, as in cases of fibromyoma of uterus morcellement is resorted to.

Hæmostasis—To control hæmorrhage, the broad ligaments are as a rule ligatured in compartments, with medium silk. Five or six ligatures are sufficient for each side, their ends being left long. Clamps are used only when the operation has to be completed as quickly as possible, or when there is risk of the ligations slipping. I had thus to use clamps (Doyen's or Piyon's) in six of my cases.

Drainage—With the exception of the cases of hysteropexy and removal of cystic ovaries, the

peritoneum is left open to a variable extent for drainage. The vagina is always packed, somewhat firmly, with iodoform gauze.

AFTER-TREATMENT

For post-operative treatment, the majority (124) of my patients were kept in the same room in which they were operated on, the operation and instrument tables being shifted to the adjoining room, after the patient was transferred to her bed. Of the remaining 26 patients, 22 were treated in the open ward, along with other clean cases. Four only were kept in the special "convalescent room" of the new block, as they refused, from religious prejudices, to stay in the open ward. The convalescent room becomes very hot during the summer months, as no south breeze could enter it and the sun beat into it the whole day. I preferred, therefore, to keep them in the open ward.

No hot-water bottles were used as they were not found to be necessary. A single blanket was enough in cold weather to prevent any loss of body heat. In hot weather, a thin woollen shawl was much more agreeable to the patient.

There are no trained nurses to look after these patients. The senior student-girls do special duty on them in rotation. The resident sub-assistant surgeon is in direct charge of the patient and is sent for, whenever the student girls notice any slight change the patient. I see them morning and evening until I consider them to be out of danger. Definite directions are left with the resident, as to when I am to be sent for. Of course, this entails a good deal of strain on the operator, but it is quite worth while.

Position in Bed—The patient is not kept persistently on her back, but is carefully turned from one side to the other, if the change makes her more comfortable. In vaginal cases, more latitude can be allowed with regard to movement, even in those in which Piyor's clamps are used. Fowler's position, which has been adopted for the past few months, seems to be more comfortable and is greatly appreciated by the patients.

Sedatives—I am emphatically in favour of hypodermics of morphia, during the first 24 hours after the operation, if there is much pain. A small dose, $\frac{1}{8}$ to $\frac{1}{4}$ gr. is often quite sufficient.

Nausea—Generally this was not troublesome. Cracked ice gave better relief than the usually recommended teaspoonfuls of very hot water. The vaginal cases suffered much less from nausea than the ventral cases.

Thirst is often very distressing, specially during the summer months. As a routine practice rectal enemata of normal saline solution (six ounces every 4 hours, given with a No. 12 Jacque's rubber catheter, introduced pretty high), are used. This relieves intense thirst remarkably and has the further effect of increasing the total quantity of urine excreted. In vaginal cases, the thirst is markedly less pronounced.

Bladder had to be relieved in only a few of the ventral cases, the majority of the patients being able to void urine by themselves. In vaginal cases, the bladder was relieved by catheter for the first three or four days, after which a pledget of sterilized-cotton wool placed at the introitus vagina, acted as a guard to prevent the vaginal plug from being contaminated with urine, voided by the patient herself. This temporary cotton-wool plug was changed after each act of micturition.

Bowels—As a routine line of treatment, three grains of Calomel (either in a single dose or in divided doses of quarter of a grain) are given on the evening of the second day. The following morning, a dose of white mixture of the hospital, containing two drams of sulphate of magnesium in each dose, is administered and is repeated in two hours, if the bowels do not act in the meantime. If in two hours more the bowels still remained confined, a small enema of glycerine and olive oil is given. If this is not effective, six hours are allowed to elapse before another attempt is made with a rectal injection either of a pint of hot water and soap-suds or of the following—R^e Mg Sulph 3i Ol Terebinth 3iv, Glycerine 3i, Aquad 3iv Ft Enema. To be injected high up the bowel with a soft rubber catheter. If the patient is doing well in other ways, it need cause no worry should the bowels be sluggish and not respond until as late as the fifth day.

Temperature—The axillary temperature is recorded every four hours. Any persistent temperature above 101° F is carefully enquired into.

Pulse—The pulse acts as a guide in forming an intelligent opinion of the case, and thus gives an early indication of approaching trouble. A previous observation as to its natural character is therefore always noted. After operation, the pulse rate is observed every four hours and recorded. The variations in temperature and peculiarities of pulse will be referred to under "complications."

Wound—Unless indicated by temperature and pain, the ventral wound is not dressed until the tenth day. The binder, however, is re-adjusted every day and changed, if necessary. In vaginal cases, the gauze packing is kept undisturbed for at least 48 hours, unless there is indication to change it earlier. If the pack continues dry and there is no discharge from the vagina, it may be left longer. Subsequently it is changed every day. No douches are used to cleanse the vagina, which is simply wiped out with sterile cotton-wool, through a speculum. In vaginal hysterectomies, the ligatures usually loosen and come away with a little traction, in bunches, in from two to three weeks. If they do not become detached by this time, they are removed with forceps and scissors. All the cases are dressed by me. Sutures on the ventral wound are removed on the tenth day.

Binder—After ventral oöthotomy, I advise patients to wear a binder for six months

Sitting up and Walking about—In ventral cases in twelve or fourteen days, the patient is propped up with pillows for a short time, the duration being gradually increased. At the end of the third week she is encouraged to walk a little. In vaginal cases these could be allowed much earlier. A ventral hysterio-myomectomy patient (144) travelled to Lucknow on the 25th day after operation. A ventral myomectomy patient went home (3 miles from hospital), 13 days after operation. Of course, she was carried in a rubber-tired ambulance. After vaginal hysterectomy, one patient (9) travelled to Allahabad, and another (51) to Tipperah on the 23rd day of operation.

COMPLICATIONS

Shock—In this series there was moderate shock in two ventral cases. Case 29 was one of hysterio-salpingo-oophorectomy and the operation

secondary hæmorrhage, but on removing the vaginal gauze packing, no bleeding was noticed.

It should be observed that there were eight cases of shock in 104 ventral oöthotomies, while there was only one out of 46 vaginal cases.

Secondary Hæmorrhage—I have to record no instance of this complication. This favourable result may be attributed to the following precautions taken during and after operation: (1) Use of silk for tying vessels and pedicles, grasping but a small amount of tissue in the bite of each ligature. (2) Resort to gauze pack when oozing of blood is free. (3) Careful examination at the end of operation for any, even slight oozing (*vide* cases 107 and 145, referred to under the heading of adhesions). (4) Careful removal of gauze packs both in ventral and vaginal cases. I never attempt their early removal and whenever there is the least difficulty, I use hydrogen peroxide which acts extremely well in loosening the gauze.

Variations in Temperature

	ONE OCCASION		TWO OCCASIONS		MORE THAN TWO OCCASIONS		TOTAL	
	Ventral	Vaginal	Ventral	Vaginal	Ventral	Vaginal	Ventral	Vaginal
Not exceeding 100.4° F							47	26
100.5° F to 101° F	16	5	1				17	6
101.2° F to 102° F	10	4	2		1	1	13	4
102.2° F to 103° F	10	1	2	1	1		13	2
Above 103° F							10	6
							100	44

was a prolonged one. Case 127 was a complicated one and ended in myomectomy. The patient was plethoric, with a history of alcoholism and debauchery. Both the cases revived after intra-cellular infusion of saline solution. There was slight shock in six other ventral cases. I attribute my comparative immunity from shock to the following causes: (1) Weak and debilitated patients are prepared by feeding and rest in hospital until they are considered fit to undergo the operation. (2) The average temperature in this climate is between 71.4° F to 85.5° F during ten months in the year. During December and January only does the average come below 67° F. (3) The period of anaesthesia and thus also the time of operation, are shortened as much as possible. In case No 127 referred to above, in order to finish the operation as quickly as possible I had to be satisfied by performing, what might be called, an incomplete operation. The patient, who was operated on 18 months ago, has been in active practice of her profession of an actress for the past eight months. (4) Extreme precautions are taken to avoid loss of blood and exposure of the viscera. This was only possible by having a colleague of mine to assist me.

Late Shock—One of my vaginal cases had symptoms of shock six hours after the operation. The condition was at first thought to be due to

A study of the above table is interesting, considering the circumstances under which the operations were performed. In no less than 94 cases the temperature did not exceed 101° F even on a single occasion. The 48 cases in which the temperature went up above 101° F, include cases complicated with malaria, tuberculosis, pneumonia, wound, infection, etc. In this series, there were eleven cases in which the rise of temperature was due to malaria. In every case the temperature yielded to quinine. In this country where malaria is prevalent, a sudden rise of temperature should at once call for blood examination. By keeping in mind the possibility of malaria as a cause of high temperature, grave anxiety and even serious mistakes may be avoided. It is, however, not often that plasmodium malarie are found and in the absence of other causes to account for the temperature, quinine should be freely given. I prefer the hypodermic method, giving only small doses (3 to 5 grains) well diluted. Case No 26, which was one of vaginal salpingo-ovario-hysterectomy, caused me very grave anxiety. On the third morning after operation, she was dressed by me and was evidently doing well. In about four hours, the temperature suddenly shot up to 105° F with a pulse of 160 and respiration of 36. I saw her within an hour, when she was dull and

apathetic, had a vacant look and appeared to me to be desperately ill. Naturally, acute septicæmia was diagnosed. She was repeatedly sponged and freely stimulated. The temperature and pulse, however, came down in about six hours time, with a free evacuation of the bowel. The abdomen and the wound never gave any trouble. Quinine was freely given, but she had a lot of temperatures, in spite of it, though the temperature never rose so high. She was hysterical too. How far the hysteria, the copræmia or the malaria, contributes towards this pyrexia, it was difficult to determine.

bowel and left for some hours. Flatus escaped with great relief to the patient. Of course, the above measures only give temporary relief. Active purgatives, for the evacuation of the bowels, must be resorted to in every case. In this connection, it is important to ascertain the habits of patients. If she is used to smoking the cigarette or the *hookha*—she is allowed to do so, which very often gives her relief from the tympany. Opium habit may be judiciously allowed to continue in certain cases.

Traumatic Peritonitis—In only three cases (one ventral and two vaginal) did it occur in

Peculiarities of Pulse —

	ONE OCCASION		TWO OCCASIONS		MORE THAN TWO OCCASIONS		TOTAL	
	Ventral	Vaginal	Ventral	Vaginal	Ventral	Vaginal	Ventral	Vaginal
Not exceeding 108							49	27
112 to 120	14	1	6	1	10	3	30	5
124 to 132	6	2	4		2	2	12	4
136 to 144	1		2		1		4	0
Above 144			1		1	1	2	1
No records							3	7
							100	44

It may be seen from the above table that the pulse rate did not go up above 120 in 79 out of 97 ventral cases and in 32 out of 37 vaginal cases. The remaining cases needed closer and anxious watching.

Vomiting—Persistent or excessive vomiting so as to be considered a complication occurred in 15 cases. Of course, vomiting as a sign of peritonitis or of intestinal obstruction, is not included under this heading. Fresh lime-juice with crushed ice, chlorotone, tinct capsici and effervescent citrate of magnesia are the remedies. Food by the mouth is usually withheld until the vomiting stopped. Nutrient enemata of egg and peptonized milk are relied upon. This complication was met with in 12 (or 11.5 per cent) of the ventral cases and in 3 (or 6.5 per cent) of the vaginal cases. It was noticed that the cases of vomiting occurred in groups. This was probably due to the supply of chloroform, a particular sample causing more post anæsthetic vomiting. Some patients (as in cases 78 and 143), volunteered the information, that their stomachs get easily upset and they are thus very susceptible to vomiting. The round worm as a cause of vomiting should also be kept in mind as in two of my patients (Nos 86 and 93). Their vomiting ceased immediately after the round worms were brought up.

Tympanites—Simple tympany, not as a sign of peritonitis, occurred in 9 cases (7 or 6% in ventral and 2 or 4.3% in vaginal cases). The application of turpentine stupes to the abdomen is very effectual in relieving this condition. In a bad case of this complication (No 134) the rectal tube was introduced high up into the lower

the more aggravated form. They all did well though not without causing some anxiety. More cases of this complication did not occur owing to the least possible handling and exposure of the intestines, and also to the fact that no other solution than the normal salt solution came into contact with the peritoneum. Moreover denuded areas were covered with peritoneum as much as possible. Active treatment consists mainly of free purgation. Milk whey and albumen water are the only food allowed.

Septic Peritonitis and Septicæmia—Some medical practitioners still have an idea that peritoneum is specially susceptible to infection, and it is difficult to make them believe that *peritoneum is one of the most resistant of all the organs to the invasion of micro-organisms*. Though infectious processes are due primarily to the quantity and pyogenic properties of the infectious germs, the vital resistance of the patient plays an important, if not the greatest part, in the resistance to infection. Fritsch's dictum is aphoristically true—"the patient did not die because of sepsis but became septic because she was dying." The cases of septic peritonitis may be subdivided into (I) *a most fatal fulminating form*, where the micro-organism multiplies very rapidly and its toxic products are taken up so quickly by the blood and lymph vessels that the patient is overwhelmed in a very short time and dies as though suffering from severe shock. In this form, the local reaction is slight and there is but little evidence of peritonitis, the symptoms being almost entirely constitutional. Case No 25, one of ovarian sarcoma, which died within sixteen hours of operation, belongs to this

form The patient was very weak and cachectic on admission and greatly exhausted by prolonged suffering

I undertook the operation as she begged hard to be relieved though she was clearly explained that the chances in her favour were practically nil. The operation, though difficult, was finished without any shock. Four hours after operation, her temperature was 98° F, pulse 120. At 8 P.M. her temperature was 99° F and pulse 124. At midnight, the temperature was 100.2° F and pulse 108. At 1-30 A.M. her temperature suddenly rose to 104.4° F and pulse became very feeble and almost imperceptible. She died at 2-30 A.M. Hæmorrhage and shock could be excluded and death was evidently due to infection, the patient's vital resistance being nil, treatment in these cases is of no avail. (2) *In another form* the onset of symptoms is less rapid and the course of the disease is more prolonged. Case 45 is an example of this form. This was a case of gangrenous polypus with inversion of uterus. The uterus with the polypus was amputated. The appendages were removed too. The patient did pretty well till the morning of the eighth day after operation, the temperature rising to 100.6° F. and the pulse to 112, on the 5th and 6th evenings. Bowels moved freely. On the eighth evening, the temperature rose to 101° F and the pulse to 120, the highest temperature and pulse record in this case. Next morning the temperature came down to 99° F and the pulse to 108. She began to complain of pain in the abdomen about noon. The abdomen gradually became tympanitic and the pulse steadily failed. She died in the afternoon. At the autopsy the peritoneal cavity was found to contain a large quantity of pus. (3) *The usual form*. In this the symptoms appear on the second or third day after operation and run a course of, from three days to a week. Cases 16 and 94 belong to this group. Case 16 was one of my early cases of double hydrosalpinx, dying on the sixth day. The appendages were removed with difficulty. Bowels moved on the morning of the fourth day. The same night during a few minutes' absence of the student-girl on duty, the patient got up from her bed to drink water from a water tap near by.

Next morning the abdomen became swollen and tympanitic, and the patient had constant vomiting. In the evening the stomach was washed out with temporary relief. Next morning the lower angle of the wound was opened up without an anæsthetic and localised suppurative peritonitis found. She died a few hours later. Case 94 was one of pyo-salpinx dying on the fifth day. During operation while adhesions were being broken down, a smell, as foetid pus, was noticed by me. The pyo-salpinx, however, was removed entire, no escape of fluid being noticeable even after careful examination. The abdomen being perfectly dry, I closed the wound without irrigating the peritoneum. With

the exception of some vomiting, which was considered post-anæsthetic she did pretty well till the fourth morning, when she expressed herself as "very fit and hungry." Vomiting, however, reappeared after stopping for 24 hours. Patient now looked very ill, her pulse being feeble and frequent, 150. Her stomach was washed out in the evening. Late at night, the lower angle of the wound was opened up without an anæsthetic. There was a localised cavity containing about a couple of ounces of very foetid pus. The cavity was washed out and drained. She, however, died early next morning. The highest temperature recorded was 102° F.

In determining the very difficult question as to when to operate in cases of septic peritonitis, I follow the advice of Kelly. "Whenever the patient is evidently going from bad to worse and the symptoms point distinctly towards peritonitis, it will be best to operate at once."

With regard to medicinal treatment, it is important to try to evacuate the bowels. Calomel followed by an enema of soap water with turpentine and sweet oil, acts very well. When pain is excessive small doses of morphia or codeia are given.

Pleurisy—There was one case of this complication, coming on ten days after operation. This was in a patient (No. 4) who was operated on, for tubercular salpingitis and peritonitis.

Bronchitis—There were four cases. In all of them, it was noticed within twenty-four hours of the operation and was evidently post-anæsthetic. In two of them (Nos. 145 and 149), the patients had previous history of chronic bronchitis.

Broncho-pneumonia—In two cases (Nos. 33 and 35) this complication supervened, seven and fourteen days after operation. The forced recumbent posture evidently accelerated the condition. They got well with the usual treatment combined with elevated posture.

Pneumonia—Lobar pneumonia came on, in two cases, after vaginal hysterectomy. Patient 62 had marked physical signs over both bases six days after operation. She got well with crisis on the tenth day after operation. Patient 108 complained of pain over the right base on the fourth day after operation. Four days later she had well-marked physical signs over the right base. On the ninth morning, there was crisis, and the patient died of heart failure. Abdominal and vaginal conditions were quite satisfactory.

Ileus—No case of this complication occurred. Kelly had to re-open the abdomen for ileus four times in 1,800 abdominal section cases.

Stitch Abscess and Suppuration in the line of incision—This happened in 15 out of 104 ventral cases. Of this series, the last 25 cases were operated on with dressings, etc., sterilised in a high pressure steriliser, with two cases of stitch abscess or 8 per cent. In the previous 79 cases, an ordinary Schimmelbusch's steriliser was used, with 13 cases of stitch abscess or 16.4 per cent. The

result is certainly much more satisfactory with the high pressure steriliser. There is no doubt that the limitation of stitch abscess depends more on the vitality of the tissues in the line of incision and adjacent to it, than upon the mere exclusion of infectious germs. Abdominal walls with a thick layer of fat were more prone to suppuration. Sometimes I have noticed nothing but liquefied fat, oozing from between the sutures. It is possible that the penetrating suture used by me, contributed to this large percentage of stitch abscess, by causing strangulation of the fatty tissue.

Urinary Fistula—There was only one case (No 81) of this complication. This was a complicated operation for the removal of a papillomatous cystic growth, invading the broad ligament and filling up the Douglas' pouch. During the process of enucleation of the cyst the bladder was injured and I had to leave a bit of the cyst-wall $1\frac{1}{2}$ in diameter, attached to the bladder. I stitched up the bladder and drained the peritoneum. The sutures failed to hold in the diseased tissues and a urinary fistula resulted. She insisted on leaving the hospital and was discharged 34 days after operation.

Phlebitis—I have had only one case (No 130) of phlebitis in the femoral vein after an uncomplicated hysteromyomectomy. It came on, in the left leg on the eleventh day after operation. She recovered in three weeks.

MORTALITY

I have unfortunately to record six deaths in this series, *i.e.*, a mortality of 4 per cent. There were 104 ventral cases with 4 deaths and 46 vaginal cases with 2 deaths. Five of these cases have already been referred to, four under "septic peritonitis" and one under pneumonia. The only other death was in a case of exploratory ventral cœliotomy for a uterine sarcoma, with symptoms of intestinal obstruction. A complete operation was never expected, neither could be carried out. She died in four days from exhaustion.

My mortality compares favourably with some of the recent statistics. Giles shows a mortality of 4.1 per cent in 1,000 cases of gynaecological abdominal sections (*Jour. Obs. Gyn. Br. Empire*, July 1910). In the Calcutta Medical Institutions, during four years (1906-1909), 547 abdominal sections for gynaecological conditions were performed with 69 deaths or a mortality of 12.6 per cent. In the Madras Presidency, 353 sections were performed in five years (1904-1908) with 60 deaths, *i.e.*, a mortality of 17 per cent.

The favourable result in this series may be attributed to the following: (1) Careful preliminary diagnosis, (2) Simple aseptic technique, (3) Use of few instruments and appliances, (4) Limited number of assistants (practically only one), (5) Limited incisions. Personal attention to details, before, during and after operations.

STATISTICS

The following is the detailed list of operations, with the diseased conditions for which they were performed—

	Ventral	Vaginal
Cœliotomy for—		
Ventral Hernia	7	
Hæmatocele (Ecto-pic preg)		1
Vesico Vaginal Fistula		1
Encysted Peritonitis	6	
Peritoneal Cyst	1	
Exploratory	4	
Suspension or Fixation of Uterus for—		
Retroversion		1
Prolapse	1	4
Conservative operations on Tubes and Ovaries for—		
Closed Tube	1	
Hydro-salpinx	2	
Salpingo oophorectomy for—		
Chronic Inflammation	14	2
Hydro salpinx	2	
Hæmato salpinx	1	
Pyo salpinx	6	
Ovarian Abscess	4	
Tuberculosis	2	
Gravid Tube	3	1
Hystero salpingo-oophorectomy for—		
Extensive Disease	1	2
Ovariectomy for—		
Cystic Graffian Follicle	1	1
Cystadenoma	16	
Papilloma	1	
Dermoid	4	...
Sarcoma	1	
Parovarian Cyst	1	1
Intra-ligamentary Cysts	3	1
Myomectomy for—		
Fibromyoma	7	
Hystero myomectomy for—		
Fibromyoma	13	
Total Hysterectomy for—		
Adenoma	...	1
Sarcoma	1	...
Cancer Cervix	1	19
Cancer Body		1
Prolapsus		4
Inversion		2
Fibromyoma	1	4
	104	46
	150	

VENTRAL CÆLIOTOMY

The following is a short comparative table of ventral cœliotomies performed by Giles, in the Calcutta Medical Institutions, in the Madras Presidency—

	Calcutta Medical Institution	Madras Presidency	Giles	Author
Ovariectomy (including broad ligament cysts)	135	155	227	27
Hysterectomy (including Myomectomy)	106	86	339	24
Salpingo-oophorectomy	249	53	144	31
Extra Uterine Gestative	36	17	70	3
Hystero pexy	21	41	220	1
Other operations		1		18

The above table brings out prominently the fact, that in a very large number of cases (45.5

per cent) ventral cœliotomy is performed for diseases of the appendages in the Calcutta Medical Institutions. The percentage of salpingo-oophorectomies to the total number of my cases, works out at 30 per cent. In the first of my series I had 48 ventral cases with 20 salpingo-oophorectomies while in the second half, I had 26 cases with 11 salpingo-oophorectomies or 41.6% 19.6%. With greater experience my percentage of salpingo-oophorectomies has come down. I emphatically state that in chronic inflammatory disease of the appendages, we ought to give a thorough trial to medical treatment before resorting to surgery. Under proper treatment healing commonly takes place and so complete may this be, that full functional activity is regained. I quite appreciate the difficulties of a hospital, where there is a constant demand for beds. A senior practitioner in Calcutta commanding a very good practice, once expressed a desire to do "some ovariectomies." I asked him to see some operations at the Eden Hospital, Calcutta. After witnessing about a dozen cases, he changed his mind and told me that he had "no right to perform these operations in a place where the services of an experienced gynaecologist were available. No two cases were alike and formidable complications might arise during operations which taxed the skill of even the most skilful and experienced surgeon. It was no question of competency or incompetency on his part, but it was common justice and fairness to his patient's best interests."

There is one other point to which I would refer. It may be seen from the above table that the operations for extra-uterine pregnancy, varies in the first three columns between 5 to 7 per cent while in my series, it is less than 3 per cent. This is explained by the fact, that I prefer waiting in this case, if possible, and then operate by the vaginal route extra-peritoneally. If the after-treatment is carried out rationally and skilfully, the convalescence in extra-peritoneal vaginal operations, is as rapid as in ventral cœliotomies. The fault, if any, lies with the surgeon and not with the method of operation.

VAGINAL CÆLIOTOMY.

In this series, the vaginal route was selected in 46 cases. It may thus be seen that I resorted to vaginal cœliotomy in a large percentage of cases. Of these there were 31 hysterectomies (21 for malignant disease of the uterus, 4 for fibromyoma of uterus, 4 for prolapse and 2 for inversion). Of the remaining 15, 5 were colpo-hysteropexy, 3 salpingo-oophorectomy, 2 hysterio-salpingo-oophorectomy, 3 ovariectomies, 1 for vesico-vaginal fistula and 1 for hæmatocele. In these cases, the consent of the patient, or her relatives, was easily obtained. I resorted to vaginal cœliotomy, only in cases where the pelvic lesions were accessible, using anterior or posterior colpotomy according as the one or the other was indicated.

There is no doubt that vaginal cœliotomy reduces post-operative shock, lessens the chances of sepsis, shortens and lightens the convalescence, avoids dangers of traumatic adhesions and does away with post-operative hernias. In spite of such advantages over ventral cœliotomy, vaginal cœliotomy is not generally practised, and I have heard a gynaecologist say (1) that it is working in the dark, (2) that you are not sure of hæmostasis, and (3) that you cannot disinfect the vagina. As to the above objections my answers are (1) that one must select his cases and carefully judge that they are suitable for the vaginal route, (2) that with ordinary precautions one can easily overcome the uncertainty of hæmostasis, and (3) that the vagina can be disinfected, as proved by results.

I am distinctly in favour of vaginal cœliotomy when it can be performed. Vaginal operations, no doubt, require a special training and the necessary skill comes with a more minute operative experience. Those who shirk from performing vaginal cœliotomy, from preconceived ideas of its difficulties, will never acquire the necessary skill and will thus bring this method into disrepute. I fully recognise the difficult position of vaginal cœliotomy. Its dominion is limited.

THE INFLUENCE OF DYSENTERY ON THE INCIDENCE AND MORTALITY OF TUBERCLE OF THE LUNG

By W. GILLITT, M.B.,

CAPT., I.M.S.,

Superintendent, Central Jail, Buxar

EVERY one who has to deal extensively with dysentery in a jail population must have been struck by the frequency with which this disease is associated with tubercle of the lungs.

The first reference I can find to this subject is in the Annual Administration Report on the Jails of Bengal for the year 1893.

"The connection between tubercle of the lungs and dysentery has been brought forward in a note by Surgeon Captain W. J. Buchanan (of the Midnapore Central Jail) whose observations have been in some measure confirmed by Dr. A. H. Nott at Bhubhum and Hazaribagh." Stress is laid upon the fact that "no special symptoms occur to draw attention prominently to it, the cough and expectoration being usually absent until quite at the last."

In the Report for the following year it is mentioned that "further observations were made throughout the year on this point and tend to confirm the opinion that persons who have suffered from dysentery are prone to tubercle, but there does not seem to be any closer dependence than the well recognized fact that the subjects of any debilitating process especially if it be one which interferes largely with the general nutrition of the body through

defective assimilation of food, are liable to this disease"

In order to analyse the relationship between them it is convenient to divide the cases into the following types —

(1) Tubercle of the lungs terminating in an attack of acute dysentery

(2) Chronic dysentery and tubercle occurring at the same time both of long standing and with no evidence to show which began first

(3) Chronic or recurrent dysentery followed by tubercle of the lungs

(1) TUBERCLE OF THE LUNGS TERMINATING IN AN ATTACK OF ACUTE DYSENTERY.

This is the most common variety. In the *post-mortem* records of this jail for the last 12 years there are reports on 53 cases of tubercle of the lungs

Among these 13 (*i.e.*, 24.5%)* showed ulceration of the colon and rectum. The ulcers occurred chiefly in the large intestine, although occasionally the lower part of the ileum was also involved

There is, I think, no doubt that they were true dysenteric ulcers, and there is no evidence to show that they were of long standing

Illustrative case

Prisoner Saudagar Kandu, age 21, was admitted to the Jail Hospital for debility on 16-9-08. The disease was changed to tubercle of the lung on 21-9-08. His weight on this date was 65 lbs. He was discharged to the convalescent gang on 21-10-08, weighs 73 lbs.

On 25-11-08 he was re-admitted for phthisis, weight 68 lbs. He gradually lost weight until at the beginning of December 1908 he developed signs of dysentery and passed numerous loose stools containing mucus and blood.

He rapidly got weaker, and on 20-12-08 his weight was only 52 lbs. He died on 30-12-08.

The *post-mortem* showed acute ulceration of the lower two feet of the large bowel of a dysenteric type.

The whole of the left lung was tubercular and there was a large cavity in the upper lobe.

(2) CHRONIC DYSENTERY AND TUBERCLE OF THE LUNG OCCURRING AT THE SAME TIME WITH NO EVIDENCE TO SHOW WHICH WAS THE PRIMARY LESION

One case was of this type. The patient was admitted to hospital three times for dysentery and died eventually of tubercle of the lungs during the same year.

The *post-mortem* showed, in addition to the lesions in the lungs, numerous small ulcers in the large intestine, and although it is certain that both diseases had existed together for some

time before his death it is impossible to say which began first.

(3) CHRONIC OR RECURRENT DYSENTERY FOLLOWED BY TUBERCLE OF THE LUNGS

Out of the 53 fatal cases of tubercle of the lungs referred to above, 7 appeared to have developed the disease after suffering for some time from chronic dysentery.

In only 2 of these 7 cases was there actual ulceration of the large intestine at the time of death, described as "chronic."

In 2 other cases it is noted that there were scars of dysenteric ulcers, while in the other 4 the fact that the tubercle followed chronic dysentery, and was presumably dependent on it, was expressly stated.

For instance one case is described as "dysentery with complication of tubercle of the lung towards the end" and the lesions in the lungs are said to be *recent*.

In another case the patient was in hospital for 3 months suffering from chronic dysentery, and at the time of death there were tubercular cavities at both apices.

In addition to these fatal cases I have examined the records of 18 other cases of tubercle of the lungs admitted to the Jail Hospital during 1908 and 1909.

In 4 of them there was a definite history of prolonged dysentery and in two others evidence of mild dysentery shortly before the admission for tubercle.

The total number of cases of tubercle investigated was therefore 71, and of these 11 (or 15.5%) had a well marked history of recent chronic dysentery.

It is probable that dysentery was a predisposing factor in a larger proportion of the fatal cases, because the fact of there having been repeated attacks of dysentery would not be noted in a *post-mortem* report on a case of tubercle, unless the connection was very strong or unless one were specially looking out for such cases. The number of cases, too, in which tuberculosis is developed before admission to jail and in which a reliable history cannot be obtained is considerable.

It is impossible owing to release, transfer or death, to follow up more than a small proportion of a given number of cases of chronic dysentery for any length of time, and for this reason the fatal cases predominate in the foregoing figures.

It would be very instructive to find out how many out of say 50 cases of chronic dysentery, had developed tubercle within a year of their discharge from hospital.

The disease comes on very insidiously, sometimes without cough or any symptom pointing to lung trouble.

Continued loss of weight after all dysenteric symptoms have disappeared would be a

* In addition to the above 13 cases dysenteric ulceration of the intestine, there were 3 cases of tubercular ulceration. In one case this was confined to the small intestine but in the other two it extended into the ascending colon.

suspicious sign and would probably lead to an examination of the chest

RECORDS OF A FEW CASES

Prisoner Nanhoo Dusadh was almost continually ill from dysentery during the latter half of 1908. He was admitted to hospital in July, September, October and November of that year.

On the last occasion (5th Nov '08) he did not react to treatment and the symptoms persisted until Feby '09. On 6th Feby he was inoculated with dysentery vaccine, and after two further injections was discharged cured to the post dysenteric gang on 10th March.

He was admitted to hospital for ague on 16-4-09 and was discharged to the convalescent gang on 24-4-09. On 10th May he was admitted for tubercle of the lungs and is still in hospital for this disease.

He has had no bowel symptoms since Feby 1909, but since his last attack of dysentery he has never been well enough to go to work. It is probable that the fever he had in April 1909 was due to tubercle.

Prisoner Langra Chaman was admitted to hospital for dysentery once in 1906. He again had dysentery in April, May and August 1908. On 12th December 1908 he was again admitted for this disease and remained in hospital until 9th Feby 1909 when, although his dysentery was apparently cured, he was found to have signs of tubercle of the lungs.

He is still under treatment.

Prisoner Kunkun Dusadh was admitted to hospital for dysentery on 19-11-08 and remained until 13-1-09 when he was found to have signs of tubercle of the lung.

Prisoner Kaleshwar Dusadh had attacks of dysentery in April, May and twice in September 1908. He never regained the weight lost during his illness, and on 21st December 1908 was found to be suffering from tubercle of the lungs.

Prisoner Gouri Dhari was admitted to jail in good health on 5th September 1908.

On 17th October 1908, he developed dysentery and the symptoms continued without any improvement until the end of December. He was vaccinated on 31st December and his bowel symptoms rapidly improved, by the end of January he was passing healthy stools. He did not regain his strength, had no appetite, and continued to lose weight.

His chest was examined several times without revealing any signs of disease. He had no cough and no fever, and his stools remained healthy.

On 10th March 1909, there were signs of consolidation at the right apex. Death occurred on 10th May, and on *post-mortem* examination the right upper lobe was found to be consolidated and to contain a small cavity. The large

intestine contained scars of old dysenteric ulcers.

Prisoner Handu Behara had dysentery in April '07, August '07, April '08, Aug '08 and Oct '08. He was admitted to hospital on 7-11-08 for tubercle of the lungs and died on 1st Dec '08.

At the *post-mortem* examination, in addition to the tubercular lesions in the lungs, there was found recent dysenteric ulceration in the large intestine.

It is possible that having suffered severely from dysentery in 1907 and 1908 he became infected with tubercle, and when this disease had lowered his vitality still more a recurrence of the original disease rapidly proved fatal.

Prisoner Jitoo Mahto suffered from dysentery during nearly the whole of 1908, thus he had attacks in April, July, Aug, Sept and October.

The last attack was prolonged and he was not discharged to the post dysenteric gang until 4-2-09. He remained in the gang until 13-2-09 when he was admitted to hospital for tubercle of the lungs. Death occurred on 11-8-09, and the *post-mortem* examination showed tuberculosis of the upper and middle lobes of the right lung.

There were also scars of ulcers in the large intestine.

HOW ARE THE TWO DISEASES ASSOCIATED?

There seems to be no particular reason why a person suffering from one of these two diseases should be so prone to become infected with the other.

It is probably merely a question of exposure to infection when the soil is prepared.

If we take a case of chronic dysentery and consider how every organ and function of his body is impaired, it is quite easy to understand how readily he will fall a prey to any infectious disease to which he may be exposed.

The same is true of tubercle of the lungs. The reason tubercle of the lungs and dysentery so frequently occur in the same individual is probably that, in large jails, both these diseases are always present in more or less degree.

II CONCLUSIONS TO BE DRAWN

If the above inferences are correct, then we may fairly assume that a decrease in the incidence of dysentery or rather of chronic dysentery, would naturally tend—

(a) To materially lessen the incidence of tubercle of the lungs.

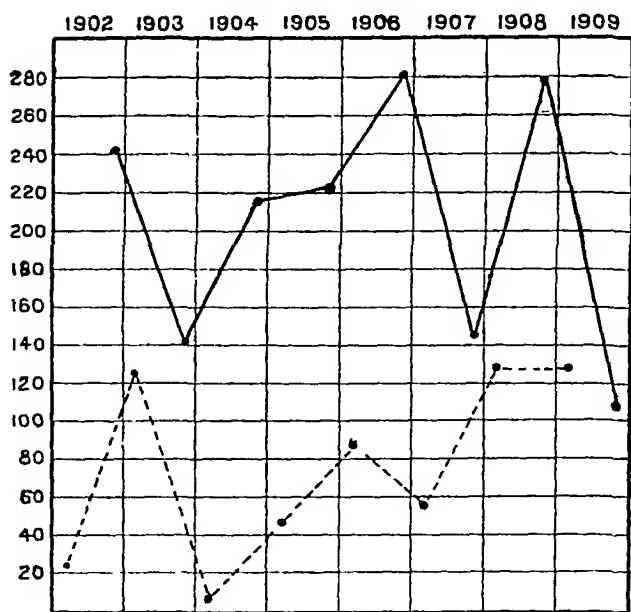
The results obtained in this jail tend to support this view. Since the introduction of the vaccine treatment of dysentery the marked fall in the incidence of this disease and the prevention of the chronic type have been

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By CAPTAIN W. GILLITT, M B (Lond.), I M S,

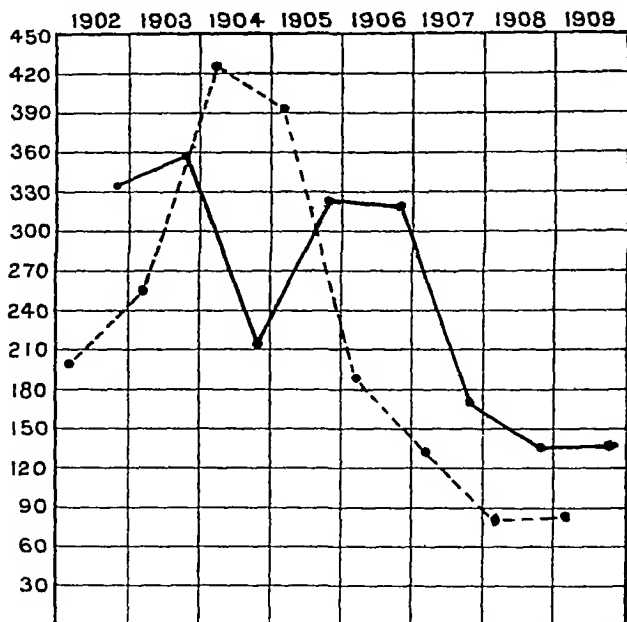
Superintendent, Central Jail, Buxar

Buxar Central Jail



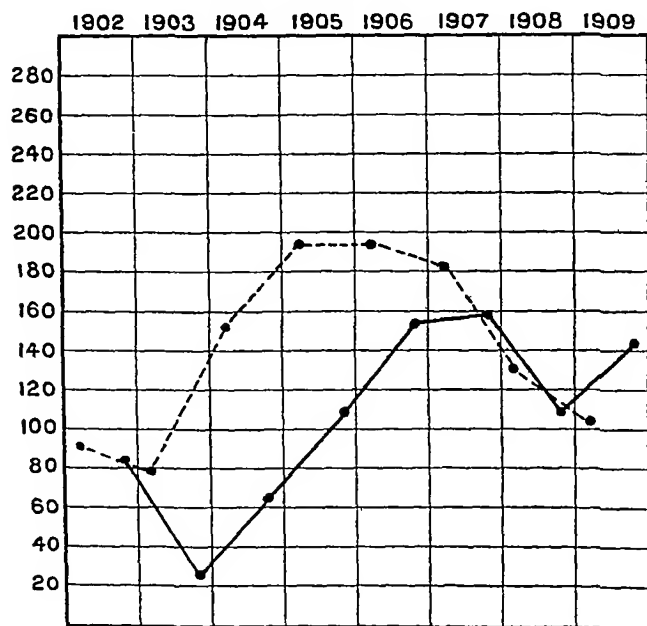
Incidence of Dysentery per mille, thus ———●———
Incidence of Tubercle per mille (X10) thus - - - - ● - - - -

Midnapore Central Jail



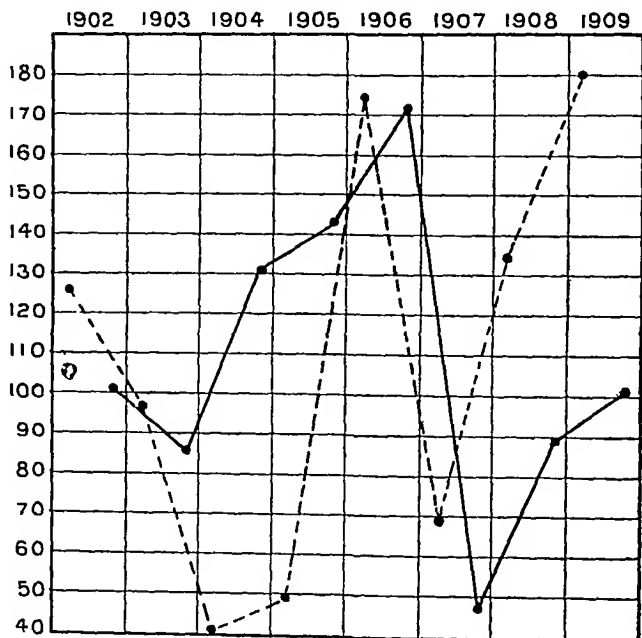
Incidence of Dysentery per mille ———●———
Incidence of Tubercle per mille (X10) - - - - ● - - - -

Alipore Central Jail



Incidence of Dysentery per mille thus ———●———
Incidence of Tubercle per mille (X5) thus - - - - ● - - - -

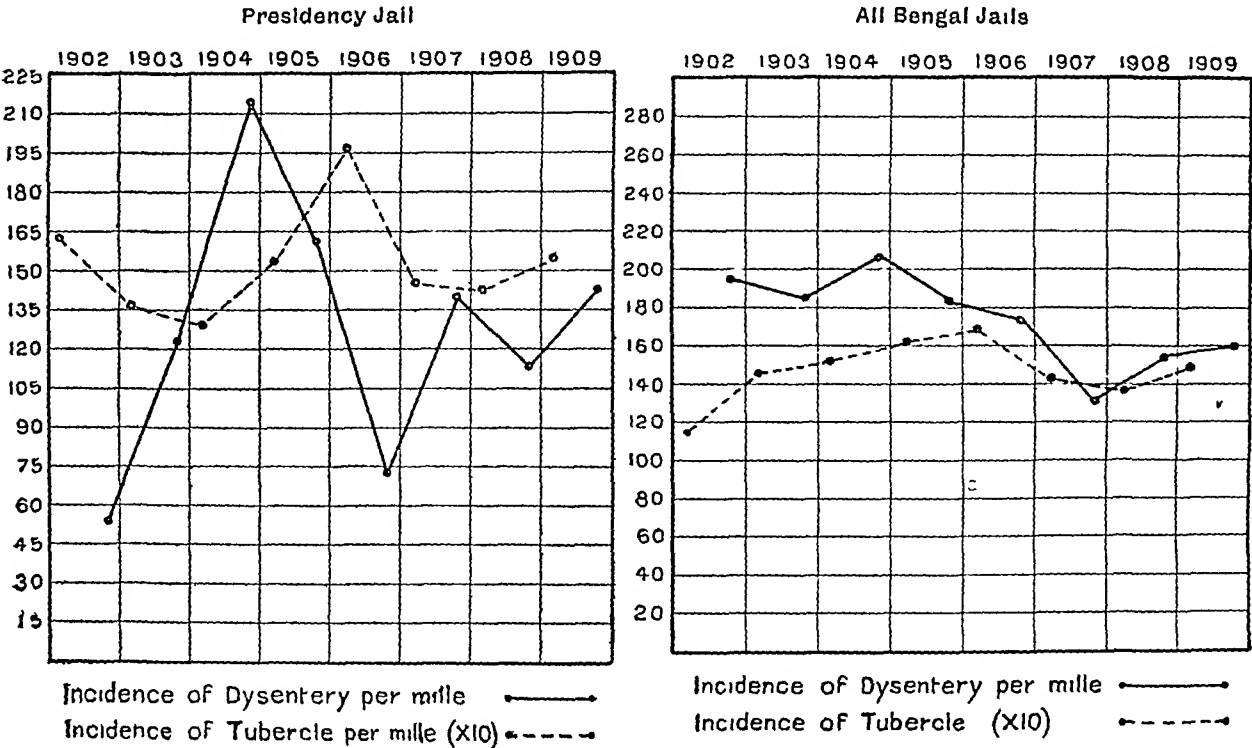
Bhagalpur Central Jail



Incidence of Dysentery per mille ———●———
Incidence of Tubercle per mille (X10) - - - - ● - - - -

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BY CAPTAIN W. GILLITT, M B (Lond), I N S,
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accompanied by a fall in the incidence of tubercle of the lungs, as shown below —

Date	No of admissions for Dysentery	No of admissions for Tubercle
1st July to 31st Dec 1908	233	12
1st Jan'y to 30th June 1909	108	12
1st July to 31st Dec 1909	30	5
1st Jan'y to 30th June 1910	8	2

These figures are by no means conclusive owing to the short period under review, but they show very markedly the synchronous fall in the incidence of both diseases and I feel sure that further observations will point the same way

(b) Another important result of lessening the incidence of dysentery would be to lower the case mortality of tubercle of the lungs

I have shown above that in 53 fatal cases of tubercle of the lungs, an attack of dysentery occurred in 24.5 per cent towards the end, and presumably was a factor in determining the fatal issue. It is probable that a certain proportion of these would have recovered if there had been no complication

It is possible theoretically to remove a phthisical patient from all risk of infection by the dysentery bacillus by strictly segregating all dysentery cases while they are under treatment, and by so treating them that their bodies do not harbour the bacilli after they are discharged from the hospital

In practice this latter result is to a great extent achieved by using Foister's vaccine in all cases of dysentery. Its effect on the incidence of dysentery has been shown in a previous paper (*I M Gazette*, September 1909), and there is every reason to believe that it has also to a certain extent influenced the case mortality of tubercle of the lungs. However this may be, during the past year and during the first six months of this year no tubercle patient developed any dysenteric symptoms. The case mortality compared with that of the four previous years is shown below —

1905	6 cases with 4 deaths	Case mortality 66.6 %
1906	11 " 4 "	" " 36.3 %
1907 ..	7 " 4 "	" " 57.1 %
1908	16 " 9 "	" " 56.3 %
1909	17 " 3 "	" " 17.6 %

I do not wish to lay too much stress on these figures as the numbers are very small, but as far as they go they support my argument.

It would be much better to take the average for at least five years instead of single years if that were possible, but the vaccine treatment of dysentery has as yet not been in use long enough to allow of this.

III A COMPARISON OF THE TWO CURVES FOR VARIOUS JAILS IN BENGAL

The accompanying charts seem to show a certain dependence of the two diseases one upon the other, especially in many cases a rise in the incidence rate of tubercle synchronous with or immediately following a high rate for dysentery. As dysentery is only one of many factors which may determine an attack of tubercle it would not be justifiable to draw any definite conclusions from a mere similarity in the two curves

In view, however, of the other evidence it is more than probable that this similarity, where it exists, is not entirely due to coincidence, but that it is to some extent caused by the influence exerted by one of the diseases in predisposing to the other

Chart A for the Buxar Central Jail shows a rise in tubercle in 1903 following a high dysentery rate in 1902, and a fall in 1904 following a low rate for dysentery in 1903. Both dysentery and tubercle show a rise in 1905 and 1906, a fall in 1907 and well marked rise in 1908

Chart B for the Alipore Central Jail shows a rise in the incidence of both diseases during 1904 and 1905, the high rate is maintained in 1906 and 1907 and there is a distinct fall in 1908

Chart C for the Midnapore Central Jail shows a rise in the incidence of both diseases in 1903, the tubercle curve continues to rise also in 1904. In 1905 it begins to drop following a drop in the dysentery rate for 1904. Except for a rise in the dysentery incidence in 1905 and 1906 the tendency is for the incidence of both to fall

Chart D for the Bhagalpur Central Jail shows two almost identical curves

Chart E for the Presidency Jail shows very little except a rise in tubercle in 1905 and 1906 after a very high incidence of dysentery in 1904

The incidence of dysentery in 1906 is very low and in the following year there is a distinct fall in tubercle

Chart F for the Jails of Bengal shows very little variation in either disease, the rate being nearly constant from year to year

THE TREATMENT OF AMOEBIC ABSCESS OF THE LIVER BY ASPIRATION AND INJECTION OF QUININE WITHOUT DRAINAGE, WITH SOME REMARKS ON MAJOR STEVENS' SERIES OF CASES

BY LEONARD ROGERS, M.D., F.R.C.P., B.S.F.R.C.S., I.M.S.

In 1902, as a result of experimental work, I suggested the treatment of tropical abscess of the liver, when free from bacterial infection as is nearly always the case, by withdrawal of the pus by means of aspiration and injection of a solution

of quinine to kill the causative amoeba, much on the same principle that cold tubercular abscesses are commonly treated by aspiration and injection of iodoform. In 1906 I published, in conjunction with Major Roger P. Wilson, I.M.S., two successful cases of the use of my plan. Since that time the method has been favourably reported on by several observers. Major A. Hooton, I.M.S., recorded a successful case in 1908, but found that a single evacuation and quinine injection failed to cure two large abscesses. In January 1909 Major C. G. Spencer, R.A.M.C., Professor of Surgery at the Royal Army Medical College, reported three successful cases, two of which were rapidly cured by a single injection. The third was in a greatly emaciated subject from whom 50 ounces of pus were removed at the first aspiration, 53 ounces a fortnight later and 40 ounces after the lapse of another week, quinine being injected each time. He steadily improved after the third operation and put on several stones in weight. As a result of his experience Major Spencer advised that my method should first be tried in every case of the disease as even when unsuccessful it gives temporary relief and may place the patient in a better position to stand the open operation.

Since publishing the first result four years ago I have had many opportunities of watching cases in which my plan has been kindly tried by medical friends in the Calcutta European Medical College and Howrah Hospitals, which afford valuable material for enabling its true worth to be estimated, so I propose in this paper to briefly review the subject.

THE FACTS ON WHICH THE METHOD IS BASED

As I have recently dealt very fully with amoebic abscess of the liver in the second edition of my work on *Fevers in the Tropics*, it will suffice here to state the essential facts which led me to propose this simple method of treatment in the form of following propositions, of which ample proof will be found in the article referred to.

(1) The amoeba is always present in the walls of recent tropical liver abscesses, being the only constant organism present, and is doubtless its cause.

(2) The very large majority of such liver abscesses are sterile as regards bacteria before being opened. 86 per cent of my last 87 cases having been so.

(3) The open operation in the warm damp climate of Calcutta is almost invariably followed by infection of the wound by staphylococci and bacteria within three days. In a series published in 1908, 80 per cent were found to have become infected, but I am now convinced that even this is an underestimate, probably due to the pus for examination having sometimes been taken immediately after irrigation with an antiseptic. Since this source of fallacy has been guarded against not a single one of several records of cases

examined at the time of operation and at subsequent periods have remained sterile after the open operation.

(4) The almost inevitable septic infection of amoebic liver abscess is a serious cause of the high mortality of the disease in the case of large deep-seated cavities, and even when not fatal it greatly retards the healing of the wounds.

In support of the first part of the last proposition it will be well to quote the opinion of an experienced surgeon, namely, Major C. G. Spencer, R.A.M.C., Professor of Surgery of the Royal Army Medical College. In advocating the adoption of my method in place of the open operation, he wrote "The chief cause of this high mortality, apart from the presence of more than one abscess, or extreme debility of the patient before operation, is undoubtedly infection of the abscess cavity by pyogenic organisms through the open wound. This is extremely difficult to prevent, no matter how much care is taken: the large amount of viscid discharge necessitates frequent changes of dressings and pus is sucked in and out of the cavity by respiratory movements, and it is very difficult to keep the skin around the wound aseptic, especially in a hot, moist climate. The great majority of amoebic abscesses are sterile when first opened, and every surgeon with Indian experience is familiar with the usual course of events in fatal cases—the patient does well for the first few days after operation, then infection occurs, the temperature goes up again, and death from septic poisoning slowly but surely follows." Sir Havelock Charles, who probably has had a unique experience of living surgeons in the treatment of amoebic liver abscess in the tropics, recently wrote "I agree absolutely with Major Rogers in the strictures with reference to post-operative sepsis." Unfortunately it is as impossible to maintain the original sterility of the blood serum-like contents of an amoebic liver abscess after the open operation, as it would be to expose a flask of any other such favourable culture medium to the Calcutta air for several minutes daily, as during the dressing of a liver abscess wound, and expect it to remain free from bacteria. I quote the above opinions of eminent surgeons with tropical experience as I have met with operators who denied the importance of secondary septic infection of liver abscess as a cause of much of the mortality of the disease, although I have never been able to get them to explain to me why septic infection of a large cavity in the liver should be comparatively harmless, when contamination of all other operative wounds is so much retarded by them.

That infection with organisms of slight virulence also greatly retards the healing of the cavities will be clear from the fact that a sterile four-inch sinus, in a liver abscess case (treated by with my flexible sheathed trocar with siphon drainage into a bottle of antiseptic excluding all entry of air into the cavity), healed up to the

surface in three days with only a few drops of clear serous discharge, while the epithelium had grown over and the patient left hospital in four days more. Such rapid sterile healing is in marked contrast with the very tedious closing of infected liver abscess sinuses.

Another advantage of the aspiration method is the smaller amount of shock following it as compared with the cutting operation, especially in deep-seated right lobe abscesses necessitating resection of a portion of a rib. The time under chloroform may also be lessened in some cases, which Sir Havelock Charles has pointed out is an important point in the prognosis. Although in the larger abscesses one or more repetitions of the aspiration and quinine injection are commonly required, the patient is usually in a much better condition to stand these, while he will have experienced such relief from the first operation that he will have lost nearly all his original dread of the ordeal.

As much pus is removed as possible with the aspirator, and through the cannula from two to four ounces of a solution of the soluble bihydrochlorate of quinine of the strength of ten grains to the ounce is injected, the cannula withdrawn and a collodion dressing and a bandage applied. If the abscess contains less than a pint of pus a single injection often suffices, but in larger abscesses it is usually necessary to repeat the process at intervals of a week or ten days. A return of fever and pain or of the local swelling will be an indication for another aspiration.

The blood changes I have also found to be a very valuable guide, for if an original leucocytosis remains even in a minor degree, pus will generally be again found. On the other hand, if a previous leucocytosis has completely disappeared a repetition of the exploration is likely to yield a negative result. Any gain in the weight of the patient is also a favourable sign.

The absence of all dressings and the exhausting discharges is by no means the least advantage of my plan, both for the patient and the medical attendants.

RESULTS

In the article already referred to I summarised the results in 21 cases in which I had an opportunity of watching my plan of treatment in Calcutta hospitals up to the date of writing. As the mortality of different forms of liver abscess differ very greatly they have been classified in Table I and the mortality of each class calculated from a large number of cases treated in the Medical College Hospital by the open operation has been added, for comparison. By this means alone can the true effect of any alteration in the treatment of a given series of cases be correctly estimated. Two cases in which the liver abscess was cured, but the patient died of independent left apical lobar pneumonia in one and of dysentery two months afterwards in the other, have been omitted, although they might equitably have been included among the liver abscess cures.

TABLE I

Liver abscess treated by aspiration and quinine injection without drainage

Site of puncture	Cases	Cured	Died	Mortality by open operation	Estimated mortality of these cases by open operation
Through chest wall	16	13	3	73%	11 68
Below right ribs	1	1		59%	59
Epigastrium	2	2		12%	24
Totals	19	16	3		12 51

Reduction in deaths in this series by the new method is thus a four-fold one.

The last column gives the estimated death-rate in the particular cases in accordance with the previous rates by the open operation in each class of case and will furnish reliable figures unless the series presented less than an average degree of severity in one or more of the classes. That this was not the case will be clear when I mention that they include abscesses from which 120, 112, and 72 ounces respectively were aspirated at the first operation. Moreover the first and third of these actually recovered completely, while the second lived for a month after admission, only 14 ounces of pus having been obtained at the third aspiration a week before his death, which took place unexpectedly when he was convalescent and walking about, apparently due to heart failure from too early exertion. One of the other fatal cases was admitted in a moribund condition and died the same day, while in the third the patient was admitted in an extremely debilitated condition.

The six pint abscess was in a patient of Major O'Kinealy's, to whom I am indebted for permission to report it. He was admitted in an extremely weak and emaciated condition with a history of eight months' illness. His liver dulness extended from the second right rib to a little below the navel. He was kept going after the first aspiration of 120 ounces by strychnine injections, and the pus having been found to be sterile, five days later 36 ounces more pus were removed in a similar manner and 40 grains of quinine injected. From that day he steadily improved, put on 18½ lbs the diaphragm receded to the level of the fourth rib and the lower edge of the liver rose to the costal margin, a complete cure having followed the single quinine injection. Need anything more be said to prove this simple method to be worthy of a trial whenever possible.

Lieutenant-Colonel A. H. Nott, I.M.S., Civil Surgeon of Howrah, has also had several very successful cases, and he informs me that he considers my method should be adopted, whenever possible, as he agrees that it is practically impossible to maintain sterility once a liver abscess has been opened, as also stated by Major Spencer. I am sanguine enough to hope that the day is not far

distant when this fact will be generally recognised, and serious efforts will be made to prevent the secondary septic infection of umbilical abscess of the liver following the open operation, by the adoption of my plan or some other equally efficient method

MAJOR C R STEVENS' SERIES OF CASES

At my suggestion Major C R Stevens, I.M.S., has given a careful and prolonged trial of this method of treating liver abscess at the Medical College Hospital, and kindly permitted me to watch his cases. In accordance with his request I refrained from publishing my remarks concerning them until he had recorded his own results, which he has recently done in the form of a brief note with two tables in the report of the Medical College Hospital for 1909 in the *Indian Medical Gazette* of September 1910. The first table includes 15 cases in which the "liver abscesses were opened and drained" with two recorded deaths and an estimated mortality of 13.3 per cent. The second table includes 16 cases "treated by aspiration and injection of quinine" (including two cases of hepatitis aspirated with a negative result) with five deaths, giving a mortality of 27.7 per cent or just double that of the open operation. (In the second Table D is entered against six cases, but that of No 5 is apparently a misprint as he left hospital with phthisis, but no definite signs of refilling of his liver abscess. After detailing the method he adopted Major Stevens concludes "Out of 18 cases aspirated five died. Out of 15 cases opened and drained two died.")

This brief statement leaves the impression that the open operation gave twice as good results as my plan. Unfortunately Major Stevens has not given the details which are essential to allow the two series to be compared, for with the exception of brief remarks in the tables regarding a few of the cases, no indication is afforded of the relative severity of the two series of cases. As the result shown in Major Stevens' tables are diametrically opposed to those given by me in the earlier part of this paper (although my Table I includes a number of the cases in this second table) it is evident that there is a fallacy somewhere, which it is most important should be cleared up. The following considerations will serve to explain the apparent discrepancies.

In the first place serious inaccuracies have somehow crept into the tables compiled for Major Stevens. Thus, in his first table case 12 is entered as D.O., which presumably means "discharged otherwise." This patient, as a matter of fact, was taken away by his friends in an exceedingly grave condition with a secondary septic infection of the wound by staphylococci and bacillus pyocyaneus, bed sores and albuminuria. Yet in calculating the mortality of the open operation as 13.3 per cent, this patient appears to have been included as a "cure." He should

certainly figure as a death, which would make the mortality half as high again as the rate given at the bottom of the table. A still more serious error is that two, Nos 4 and 9, of the five fatal cases entered in the second table, as "treated by aspiration and injection of quinine" were, as a matter of fact, first aspirated and subsequently opened and drained, precisely as in cases 8 and 12 which have been counted as cures in the table of the open operation cases. Nos 4 and 9 of the second table should therefore be transferred to the first table. These corrections bring up the deaths of the open operation series to two and a half times as many as the number given, namely, 5 out of 17 cases, or 29.4 per cent, while the mortality following my method is reduced to 3 out of 14, or 21.4 per cent. (The two cases in which no abscess was found have also been excluded from the second series although their retention would be in my favour.) The correct figures therefore show nearly half as high again a mortality by the open operation as by my method, instead of only half the rate as given in Major Stevens' tables, thus yielding a complete reversal of the apparent inferences to be derived from his note. Thus —

Open operation 17 cases, 5 deaths, equals 29.4 per cent mortality

Aspiration and quinine 14 cases, 3 deaths, equals 21.4 per cent mortality

Apud altogether from the inaccuracies above pointed out, it is essential to know whether the two series of cases are at all comparable in degree of severity before any conclusions can be drawn from them. This can best be done by classifying them according to the site of the abscess as in Table I of this paper. The former mortality by the open operation of each class at the Medical College Hospital being known, the expected death-rate by the open operation can be calculated for each series and compared with that actually obtained. The necessary data, as far as they are available, are entered in Table II. In the four classes as of doubtful position the hospital notes are not explicit on the point, but fortunately they are too few to materially affect the conclusions.

Former mortalities by open operation, 1, 73 per cent, 2, 59 per cent, 3, 12 per cent

The above table shows that the open operation series includes a large majority of the small epigastric liver abscesses, the former mortality of which by the open operation at the Medical College Hospital worked out at only 12 per cent. On the other hand, of the large right lobe abscesses deeply situated beneath the ribs, the former mortality of which by the open operation has been no less than 73 per cent, only two are included in the open operation table, both ending fatally. Yet no less than 9 out of the 14 cases aspirated and injected with quinine without drainage belonged to this most serious class, but only two of them terminated fatally, both these and the

fatal case of class 2 being practically hopeless on admission. In short, the cases taken as a whole in Major Stevens' two series are about as far from being comparable in severity as could well be imagined. In fact the aspiration series were almost twice as serious as the open operation one, as shown by the fact that the estimated mortality by the open operation according to the former rates worked out at 4.19 in the 13 open operation series which can be classified and 8.01 in the 14 aspiration series as shown in Table II.

With the aid of these figures we are now in a position to make a fairly accurate estimate of the results of the two methods of treatment. Thus, in the open operation series there were actually 4 deaths in the 13 cases it is possible to classify, against an estimated mortality at the old rates in such a series of 4.19. The excellent results

A Mirror of Hospital Practice.

A SERIES OF CASES OF CHOLERA TREATED BY MAJOR LEONARD ROGERS' METHOD OF INFUSION OF HYPERTONIC SALINE SOLUTION TOGETHER WITH REMARKS THEREON

BY T. C. RUTHERFORD, M.D.,

CAPTAIN, I.M.S.,

Civil Surgeon, Bilaspur, C.P.

On my appointment to this District last year I found that an epidemic of cholera was a fairly regular annual occurrence in the rains and therefore bought the apparatus consisting of graduated glass bulb, tubing, cannulæ, etc., as in-

TABLE II

Analysis of Major Stevens' liver abscess series

Site of puncture	OPEN OPERATION				ASPIRATION AND QUININE			
	Cases	Cured	Died	Estimated mortality	Cases	Cured	Died	Estimated mortality
1 Through chest wall	2		2	1.46	9	7	2	6.57
2 Below right ribs	3	2	1	1.77	2	1	1	1.18
3 Epigastrium	8	7	1	.96	3	3		.36
Total	13	9	4	4.19	14	11	3	8.01
Doubtful cases	4	3	1	?				

obtained in the open series are thus evidently essentially due to the very favourable nature of the majority of the cases treated by incision and drainage. On the other hand, in the cases in which my plan has been adopted the actual death-rate was 3, against an estimated one by the open operation in a similar series, according to the previous results of a large number of cases treated in the same hospital, of 8.01. This gives nearly a three-fold reduction of the mortality by my plan in Major Stevens' series of cases, which is the largest and most important in which aspiration and quinine injection without drainage has yet been adopted by any one surgeon.

Major Stevens has been altogether too modest in his brief note, and he is to be congratulated on the number of lives he has saved by the use of my method in the very serious cases in which he has adopted it. His results together with those recorded in the earlier part of this paper, should go far to ensure the benefits of the simple method of aspiration and quinine injection being substituted for the much more painful and exhausting open operation for sterile amœbic abscesses of the liver in all cases in which it is possible to carry it out, which will include a vast majority of patients suffering from this dangerous and distressing disease.

vented by Major Rogers, for the Main Dispensary, Bilaspur.

On my return from England early in July 1910, I found the epidemic in "full swing" in the head-quarters town and started the treatment. With the exception of two or three cases, however, all the operations were performed by Assistant Surgeon W. Venkat Ramana.

The following table shows the results. It should be stated that in one case, that of a child of 4 years, an intra-peritoneal injection was given. All the figures refer to cases of the disease which occurred within the limits of Bilaspur Municipality, and between the dates July 10th and September 24th, 1910, both inclusive.

Total number of cases of cholera reported to Civil Surgeon's Office	133	Total number of deaths from cholera reported to Civil Surgeon's Office	68
Number of cases treated by hypotonic infusions	39	Number of deaths occurring in cases treated by infusion	9
"Balance" number of cases not so treated	94	"Balance" of deaths in untreated cases	59
		Case mortality in treated cases	23.07 per cent.
		Case mortality in untreated cases	62.76 per cent.

Of the 39 cases treated, five received a second injection, and in 33 out of the total 44 operations

Liquor *Stychninae hydrochlor* (B P) was mixed with the infusion in doses not exceeding m 8. Of the 39 cases, 31 were males and 16 females were under fifteen years of age.

The infusion consisted of a solution in boiled well water of four drachms to the pint of common salt with which an equal quantity of partially cooled boiled well water was mixed at the time of administration. For the last few cases, however, the stock saline solution was made with distilled water. The solution and water of admixture were strained through boiled gauze in a funnel to clear it of suspended matter. Four pints was the usual dose for an adult.

The temperature of the solution as it issued from the cannula was such as to make it feel comfortably warm to the operator's hand. The glass bulb was usually maintained at a height of about four feet above the patient.

In no case was any general anæsthetic or local analgesic given.

The immediate result of the operation was usually the return of the radial pulse and of warmth to the skin, a rise of temperature in the axilla from subnormal to 102° or 103, the cessation of "cramps" and in some cases the occurrence of a rigor.

The secretion of urine was, in successful cases, almost immediately re-established and was usually maintained throughout the after progress of the case.

Patients were encouraged to drink water freely throughout the disease, but all nourishment was withheld until vomiting and diarrhoea had entirely ceased.

When the case was seen in a very early stage from $\frac{1}{2}$ to 1 oz castor oil was given otherwise no drugs by the mouth until convalescence was fully established, when a stychnine and iron tonic was prescribed.

Nearly all the cases treated belonged to the educated classes.

They were brought to the operating room of the Main Dispensary in the bullock tongas, the operation performed and immediately removed to their own homes. No case was operated on elsewhere than in the hospital operating room. Instruments were sterilized by boiling and dressings by dry heat or steam. Linen thread ligatures and sutures were used and a collodium dressing applied. In one case only did septic complications arise. This was in a convict in the jail who was in a debilitated condition when attacked by cholera. He received two infusions each of four pints.

Some ten days after the operation he developed a small abscess in the seventh right intercostal space in the mid-axillary line between the external and internal intercostal muscles. This was opened and healed up. A few days later first one tympanic membrane and then the other perforated giving exit to pus. The only other symptom of the otitis media being deafness.

This condition subsided under local treatment hearing was regained and the man is now in his usual health and doing third class labour in jail.

Remarks—The figures quoted are to my mind strong confirmatory evidence of the truth of Major Leonard Rogers' contention that *hypertonic* intravenous or, for certain cases, intra-peritoneal saline infusion is the rational and hopeful method of treating cholera. There is no doubt as to what the general public in this District think about it, and I hope that in future years the poorer classes as well as educated will avail themselves of it. As already stated this has not been the case in the epidemic just terminated. This brings me to the second part of my paper for it is not until the technique has been so simplified that Sub-Assistant Surgeons in charge of outlying dispensaries with their limited resources can practice the operation with safety that the method will attain its full utility.

Here I may mention that in 1908, Senior Grade Sub-Assistant Surgeon Mukerjee, of East Bengal and Assam, told me that he had practised the method on a large scale with home-made apparatus and with very successful results in a branch dispensary in Mymensingh District.

Owing to the lack of skilled assistance, etc., it is essential that the apparatus should be resistant to rough handling, should be cheap and easily capable of sterilization. I am arranging with Messrs Down Bros, London, for the manufacture of a cheap apparatus in enamelled iron which will provide for the filtration of the infusion and for its delivery from the cannula at a constant and predetermined temperature. The whole apparatus will be contained in an outer vessel in which everything required for the operation can be transported and sterilized by boiling over a fire.

Finally I would remark that I believe the secret of success lies in the early performance of the operation, the sooner after the establishment of the diagnosis the better. Even when the pulse is fairly good the infusion must aid in washing out toxins through the kidneys. To wait until the blood pressure has fallen and the specific gravity of the blood has risen seems to me to be about as rational as to wait for the development of an abscess to operate on a case of appendicitis or until the larynx is nearly blocked with membrane before giving anti-toxin in diphtheria.

SUCTION OF ABSCESES.

By W E McKECHNIE,

CAPT, I M S,

Civil Surgeon, Etawah, India.

DURING the past two years I have employed the suction treatment of abscesses as a routine. I have nothing but praise for the method, it

appears to be all good, and to have no drawbacks. The method was introduced, I understand, by Biers as a method of applying local hyperæmia. But suction as applied to abscesses goes beyond the mere production of hyperæmia, and has a direct curative action of the speediest kind, at all events when applied to small and superficial collections of pus.

Before I employed this method I had frequently had a good deal of trouble in the treatment of boils in the axilla. My experience had been, amongst Indian natives, that boils and abscesses in this region often proved very intractable. There was difficulty in keeping dressings clean and properly applied; the pus was very liable to infect hair follicles leading to fresh infiltration of the skin, till sometimes in despite of treatment the skin of the axilla would present an extensive brawny infiltration. I have had a case in hospital as an in-patient, carefully dressed daily, and who was two months in hospital before he was cured (Inoculation were not used). Now all this is changed. I have no trouble at all with axillary abscesses. The abscess or abscesses are each opened by a small stab puncture, the suction glass is applied, and is left on just long enough to evacuate all the pus and until pure blood flows. It is then removed, the skin dried, and a dab of collodion or other dressing applied. In many cases this one procedure cures the case; as a rule on the next day there is a small amount of healthy serum at the site of puncture, to this a dry dressing is applied, and the case troubles one no more. In some cases on the second or third day a repetition of the suction is required, the old puncture being opened by a probe. This, in the vast majority of cases, finally effects a cure.

I have cited the case of axillary abscesses, as belonging to a class of superficial abscesses which are especially troublesome. What applies to them applies equally, of course, to other superficial abscesses. All such abscesses when acute can be rapidly cured with the minimum of dressings and trouble by means of a simple stab puncture and suction. The suction appears to act as follows—

(1) All the pus and dead material is at once removed without injury to the healthy tissues. There is no tendency for the infective pus to be forced into the walls of the abscess. Rather the opposite occurs, for the pus is drawn out and away from the abscess walls by the partial vacuum.

(2) As a continuation of this evacuating process which subtracts the noxious material from the region of the bounding walls of the abscess, the suctional action being continued, when the contents of the cavity have been evacuated, the walls of the cavity and the tissues surrounding them are forced to supply their juices and blood to fill the vacuum. (I always evacuate till pure blood flows.) This juice and blood is remarkably full of leucocytes, it suffers almost

instantaneous coagulation; it is probably especially charged with those protective substances which are produced to combat microbial infection. The cavity and walls of the abscess thus become filled and charged with healthy blood, leucocytes, and lymph of a highly anti-toxic and bactericidal character. The erstwhile cavity becomes filled with a solid blood-clot, which must contain within itself highly immune bodies and material, because in my experience it is rare for it to do, otherwise then take a benign part in the process of repair. It does not break down from sepsis.

(3) The free evacuation and the pumping of blood out of the engorged capillaries, and the relief to the tissue oedema, permits of a fresh supply of blood and leucocytes to arrive at the part to supplement the action of the blood and lymph which has now been sucked into the abscess cavity (thereby irrigating and washing its walls with anti-toxic and bactericidal fluid). It is the calling up of a great reserve after the enemy has been overwhelmed by the troops already in the field. It gives the enemy the least possible chance to rally and fight again. But if he is so virulent as to do so, the process can be repeated before he can make any headway.

Such, I take it to be, is the way in which suction acts. It has its chief value in those circumscribed staphylococcal infections which are within the sphere of its action. Very deep abscesses are naturally not so amenable, because the vacuum cannot reach their deeper parts on account of the intervening tissues falling in and blocking the way. But even in these cases something may be done by directing a tube connected with the evacuator into the deeper recesses of the cavity. Sinuses may thus be frequently benefited. The method is also of great value in tubercular abscesses, although it has not that prompt curative effect which is seen in the case of the staphylococcal abscess. But it is a means of reconciling two opposing schools of treatment in a very satisfactory manner. One of these schools maintains that tubercular abscesses should be freely opened like other abscesses, and kept aseptic. The other school says that tubercular abscesses are so chronic and so readily infected by other organisms, that once they are freely opened it is almost impossible to keep them free from infection, and that when mixed infection occurs the condition is made much worse. With this I am in entire agreement, especially when we are dealing with a dirty and careless person. This school therefore maintains that tubercular abscesses should not be opened at all except when they threaten to burst through the skin of their own accord—and that in this case they should be evacuated by aspiration through a hollow needle, or by the most limited incision. The first school maintains that by this means the abscess cannot be properly evacuated. By using suction we

can meet the views of both schools to a great extent. By making our incision a simple puncture we are able to close the wound at once against infection because by the suction we can evacuate the abscess to such an extent that there need be oozing of pus out of the wound which is the means by which the abscess becomes infected when the large incision is used. The small puncture has time to seal itself and close before tension can again arise within the abscess cavity. Often tension does not occur again. If it does the process is repeated, a lesser quantity of pus being obtained on the second occasion. The amount of evacuation obtained is quite sufficient and should meet the requirements of the open method school. Of course, the deep parts under the deep fascia are not completely evacuated, but sufficient pus is obtained from them to relieve tension and to thereby help the process of repair. In this way I have apparently cured tubercular mediastinal abscesses, after evacuating three or four ounces of pus at two sittings with one week's interval. No mixed infection was seen at the site of puncture which was so healed that a fresh puncture had to be made to permit of the second evacuation. Such abscesses when treated by the open method are exceedingly dangerous and troublesome, requiring as they do at times the excision of ribs and scraping of bones. The first thing to strive for in the treatment of tubercular abscess is the prevention of mixed infection. In suction we have, I think, the best method of attaining this, whilst at the same time allowing us to do something useful for the patient.

I have cured some fistulas *in ano* without other operation than that of suction. As in the axilla, so about the hairy perineum, suction is exceedingly useful.

In conclusion, I may remark, that in the method of suction of abscesses we are indebted to Biers for one of the very greatest advances in surgery in recent times. It is a treatment which is applicable to the commonest of all surgical conditions, and which is a great improvement on all previous treatments. It has the great charms of speed, simplicity, and comparative painlessness. It is an invention which is like many other great inventions: it is so simple and efficacious that now that it is known to us, we wonder how it is that no one ever thought of it before.

SANITATION IN THE HILLS,

By L. REYNOLDS, M.B.,

CAPT., I.M.S.

For the last year as medical officer of the Lawrence Military Asylum, Sanawari, I have been engaged in trying to improve on the usual pattern of latrine and to find some method of disposing of the night-soil satisfactorily. The lat-

rine as constructed in this country is far from perfect. The ideal latrine from a hygienic point of view would have no walls and no roof, nature's powerful germicide, the sun's rays, the cheapest disinfectant and one of the best, would have full play and ventilation would be perfect. Unfortunately the rains necessitate some form of shelter and our ideas of decency demand privacy.

In designing the latrine here described I have kept the following points in mind—

1 The sun's rays must be brought to play upon the whole of the inside of the latrine for as many hours in the day as possible.

2 Ventilation must be amply provided for.

3 Rain must be kept out.

4 Privacy must be maintained.

The first thing to consider is the site, a most important point. Sometimes there is little choice but if possible the latrine should be placed on the khud side facing south, with a steep decline immediately in front. There are two great advantages in this. (1) The sun plays upon the latrine for a longer period in the day than it would if facing any other direction. (2) The screen in front of the latrine is reduced to a minimum and in exceptional cases may be dispensed with altogether. (In one latrine I have constructed the front screen consists of a wood paling only 3 ft high and perfect privacy is maintained.)

Description of the Latrine—The latrine is constructed of angle iron and corrugated iron sheeting and rests upon a floor paved with flag stones. For plan see figs 1 and 2. The height

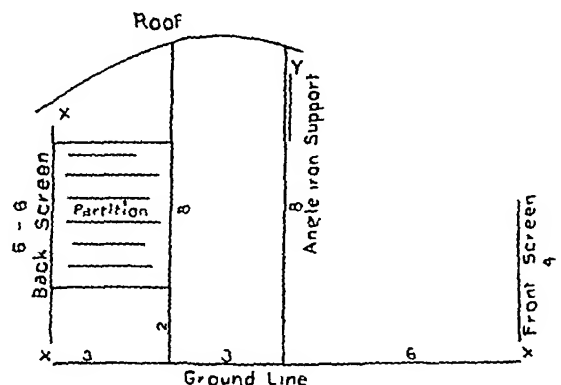


Fig 1 Section of Latrine
from before backwards

X = Spaces for ventilation

Scale 3' to 1 ft Y = Canvas screen

of the front and side screens and the size of the openings for ventilation marked X depends entirely on the surroundings, the lower the screens and the wider the openings, the better provided that privacy is maintained and that the interior does not get wet in the rains. The partitions between the seats extend from 2 ft above the ground to 5 ft 6 ins. Note the absence of any door to the compartments and the wide opening between the roof and the front screen, allowing free entrance of sunlight and air. The

seats are round, bound at the edge with hoop iron and fit into a ring of angle iron supported on three legs of the same material. The pan of enamelled iron slides beneath the seat and is maintained in position by three iron slots. The wooden seat is easily removed for washing, etc., and the commode is not attached in any way to the ground. Height from floor to top of seat 12 ins., thus allows ample room for full sized pan and is not too high. In the rains a canvas screen 18 ins. wide, eyeletted above and below at intervals of 18 ins., is hung from the roof by a

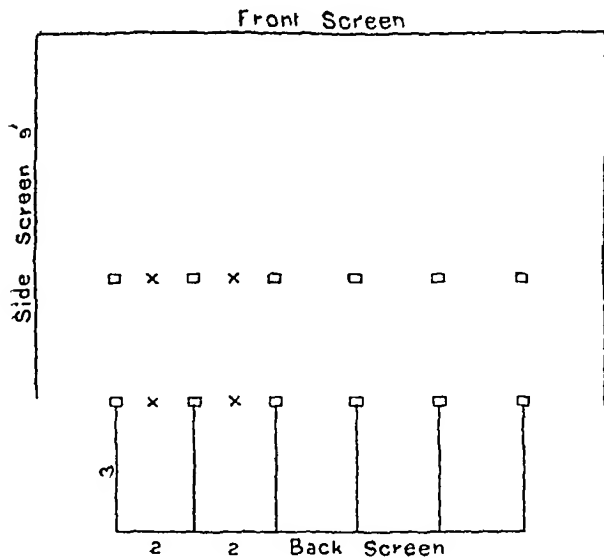


Fig II Ground plan
x = angle iron supports to roof
Scale $\frac{1}{2}$ to 1 ft

series of hooks immediately in front of the uprights supporting the front of the roof, leaving a gap of 6 ins. above for ventilation (see Fig 1). Between showers the screen is raised by hooking up the lower set of eyelets. This screen is used in the rains only.

A latrine of this type was erected eight months ago and has given entire satisfaction. Ventilation is perfect and the seats do not get wet in the heaviest rain.

Disposal of Excreta—The trenching system is impossible in Sanawai on account of the nature of the ground and lack of space. Moreover, it seems that nitrifying organisms are singularly deficient in the soil of the hills and consequently excreta are broken down very slowly. At Dalhousie little change was found to have taken place after the trenches had been filled in for over a year. To overcome this difficulty incineration was adopted. The incinerator here described is the result of a year's experience. It is very satisfactory, costs nothing for fuel and very seldom gives rise to any unpleasant smell. One incinerator of this type is sufficient for the whole of Sanawai (pop 800).

Description of Incinerator—(Figs 3 and 4) The incinerator is made of $\frac{1}{4}$ -in sheet iron and

2-in angle iron. It consists of a square chamber 4 ft by 4 ft joined by a truncated cone to a chimney 13 ft 6 in high (this height is necessary to get sufficient draft). The floor of the chamber is formed by a number of loose iron bars 1 in by 2 ins placed on edge, the ends, resting on a flange, are hammered out so as to leave an interval of 1 in between the bars when in position. By this arrangement the grid is easily removed for cleaning purposes. There is a 1 ft interval between the grid and the ground, which is paved with flagstones. The incinerator is supported by continuations of the angle iron with the ends beaten out. These extend 3 ft below the surface and are embedded in concrete. On one side (see Fig 4) there is a movable door just above the grid. This is held in position by a flange above and three loops and staples below. By removing this door the whole of the inside of the machine can be readily cleaned and the grid removed piecemeal. With the exception of the doors in front, the movable door at the side, and

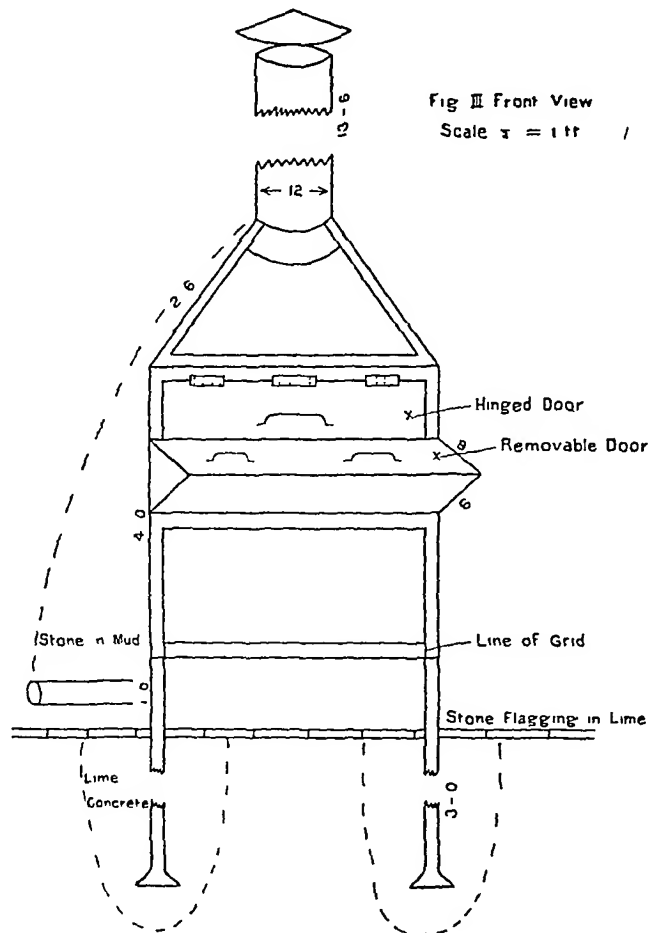


Fig III Front View
Scale 1 = 1 ft

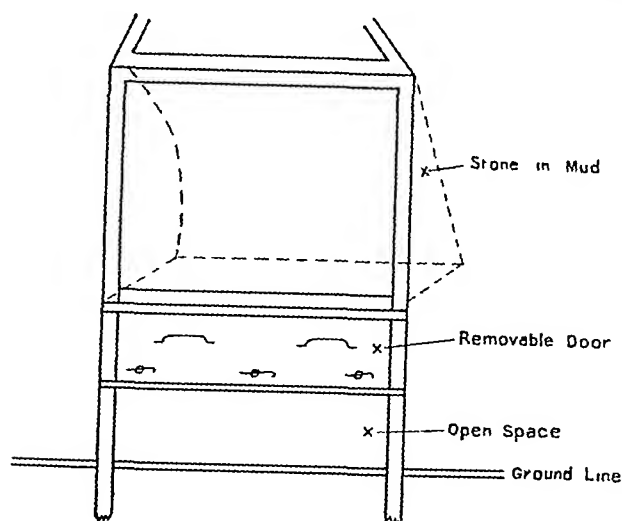
the open space in Fig 4, the incinerator is covered from the base of the chimney to the ground with stone in mud (see Fig 3) bound where necessary with strips of iron sheeting 3 ins broad. To provide for sufficient draught a series of iron pipes, 3 ins diameter, lead from the space below the grid through the mud crust to the exterior. This mud covering makes a considerable difference to the amount of heat which escapes by

radiation from the walls of the incinerator. To feed the incinerator the removable door is taken off (see Fig. 3) and the hinged door raised and hooked up (hook not shown). Below the removable door there is a lip of iron sheeting slanting downwards towards the interior of the incinerator. Into the shoot thus formed the filth, etc., is thrown, layers of night-soil alternating with layers of rubbish.

All the solid matter and part of the liquid is disposed by this one incinerator. Cost of construction about Rs 50. Cost of fuel nil, litter, rubbish and pine needles suffice.

This incinerator was constructed under the supervision of Mr Cousins, the head clerk, to whom I am much indebted for valuable suggestions.

Fig. III Side View



For the disposal of urine I have devised the following plan. A hole is dug in the ground about 2 ft 6 ins by 3 ft at the mouth and 3 ft deep. The pit mouth is levelled and over this is placed a lid made of corrugated sheet iron 3 ft by 4 ft with a sliding trap door 14 ins by 10 ins in the middle. Earth is heaped over the edge of the lid and stamped down. The trap door is only opened when urine is poured into the pit. After a few days depending on the nature of the ground and the amount of liquid to dispose of, the old pit is filled in, a new one dug and the lid again applied as above. This plan works very well. With little trouble there are no flies and no smell and the lid is applied in a couple of minutes. The size of the lid is arbitrary, providing it overlaps the mouth of the pit well on all sides.

THE SUBCUTANEOUS INJECTION OF QUININE IN MALARIA

By HUGH STOTT, M.B., B.S. (Lond.),

LIEUT., I.M.S.

At the present day, when one hears so many undoubtedly competent men belittle the sub-

cutaneous injection of quinine, in the treatment of malaria, it seems to me that the enclosed chart might prove of some interest to your readers.

The case was at its commencement diagnosed by Lieutenant-Colonel Burton, I.M.S., as typhoid fever. At an early date, however, he was apparently suspicious of a superadded malarial infection, for on the 19th March 1910 he placed the patient on quinine by the mouth grs. x twice daily—and this was continued until 12th April 1910, by which time the temperature chart showed an undoubted tertian infection—apparently unaffected by the quinine already taken.

This quinine amounted in all to 480 grains of the sulphate, given in acid solution by the Hospital Assistant, who himself saw each dose swallowed—the salt used was obtained direct from a tin supplied by the M.S.D., Madras. Major Clements, R.A.M.C., Sanitary Officer, 9th Division, was kind enough to examine a specimen of the drug for me and he reported that 'this sample gives all the tests and has all the characters of pure quinine'.

The patient's bowels were kept on the loose side, during its administration his motions averaging two per diem.

On 12th April 1910, quinine by the mouth was omitted, and on this date he was given his first subcutaneous injection of five grains of the bisulphate of quinine. Following this, for five days he was given a daily injection of seven grains of the same salt. On the day of his sixth injection the temperature fell to normal and remained normal for 27 days, when he was discharged from hospital for six months' sick leave.

He did not complain of any pain as a result of the injection, nor did any lump or induration form.

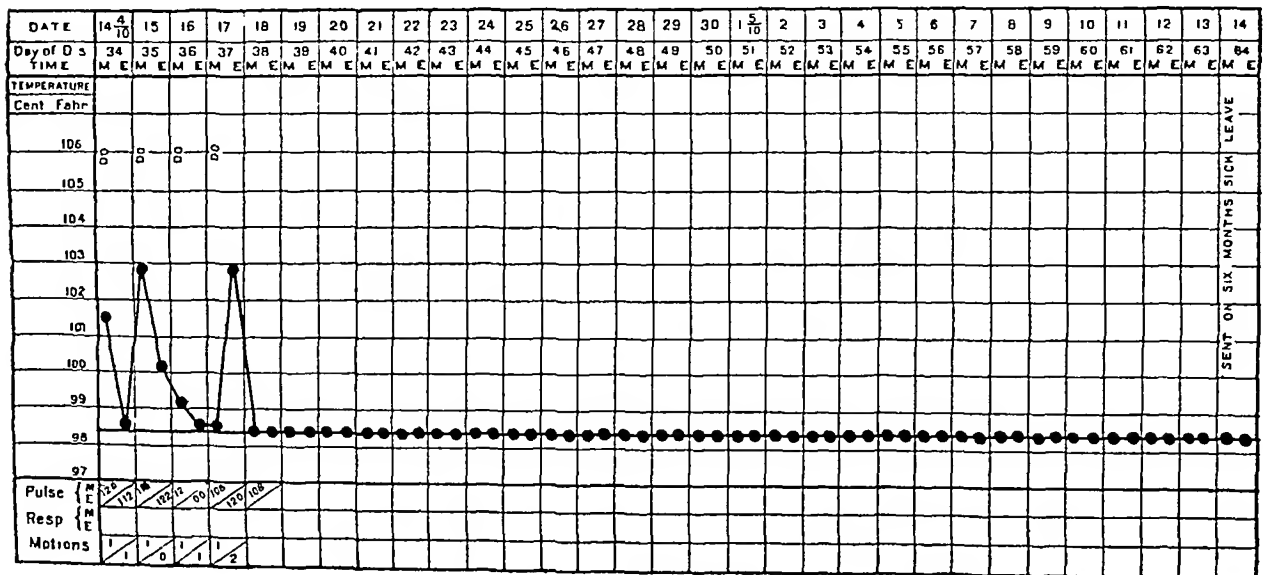
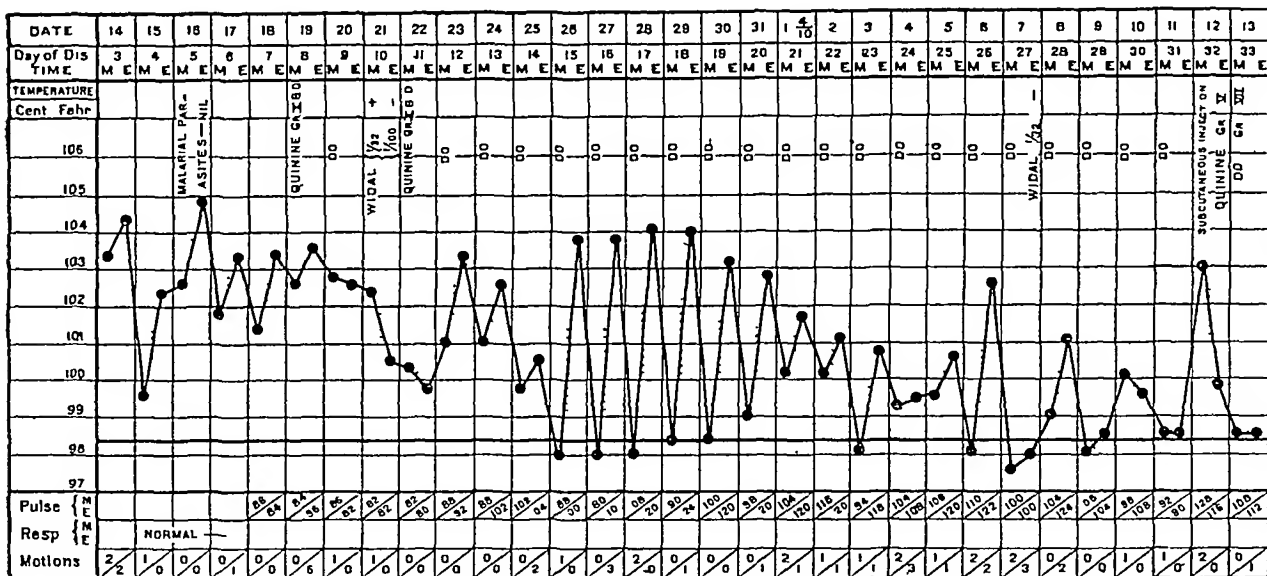
I am inclined to think that, in this case, the orally administered for some unknown reason proved inoperative, and that the patient has much to thank the subcutaneous injection for.

His medical history sheet showed no previous entry of malaria nor did the patient himself think he had ever been attacked before. His spleen was not enlarged and he did not display any severe symptoms nor signs of malignant infection.

Malarial parasites were looked for, but not found on 16th March 1910, and again, but after he had been given much quinine, on 11th April 1910. A differential count on the latter date showed polymorphonuclear cells 85 per cent, large mononuclears 5 per cent, and small mononuclears, etc., 10 per cent, but though our blood examinations failed, from the chart it is difficult to believe that the case in its latter days was not one of malarial infection.

THE SUBCUTANEOUS INJECTION OF QUININE IN MALARIA

BY LIEUT HUGH STOTT, MB, BS (Lond), FMS



Indian Medical Gazette.

DECEMBER

THE PUNJAB PLAGUE COMMITTEE, 1910

THE following are the chief conclusions and recommendations of the recent Committee on Plague in the Punjab. The Committee was composed of Colonel Bamber, I.M.S., Major E. Wilkinson, I.M.S., Capt. Gill, I.M.S., with Mr. Meredith, Colonel Egerton and Mr. King as lay members —

(1) An active anti-plague policy on the part of Government is necessary and should be continued (paragraph 5)

(2) The destruction of rats in Punjab villages by means of poison for the purpose of preventing plague epidemics is not attended with success and should be abandoned on a large scale (paragraph 14)

(3) Systematic trapping with traps in the ratio of two *per cent* of population does not reduce the rat infestation of Punjab towns and villages sufficiently to prevent plague epidemics (paragraph 23)

(4) To diminish adequately the rat infestation of Punjab towns and villages by means of systematic trapping presents difficulties of such magnitude as to render it an impracticable policy on a large scale (paragraph 23)

(5) The destruction of rats by means of poisoning and trapping on the present lines does not yield results commensurate with the expenditure incurred and it should be discontinued (paragraphs 14, 23 and 24)

(6) The greatest prospect of success in preventing the spread of plague by means of rat destruction consists in attacking the comparatively few localities where plague persists during the quiescent period (paragraphs 1, 24 and 25)

(7) Anti-plague inoculation is essentially a personal prophylactic measure and in recommending its adoption everything savouring of compulsion or pressure should be carefully avoided (paragraph 27)

(8) During severe epidemics of plague regimental medical officers might with advantage be temporarily employed as inoculating officers in the recruiting area of their regiments (paragraph 28)

(9) For dealing with plague epidemics in villages evacuation is a most important anti-plague measure, and means are suggested to

facilitate its more widespread adoption (paragraphs 30, 31, 33)

(10) Measures directed towards improving village sanitation and domestic hygiene are of the utmost importance, and efforts should be made to give effect to such simple measures of this nature as public opinion may endorse (paragraph 35)

(11) The erection of model houses at the head-quarters of districts, the removal where possible of manure from close proximity to village sites and an increased conservancy staff for villages are desirable measures (paragraph 36)

(12) The disinfection of infected houses during the course of an epidemic or after its cessation is not ordinarily necessary (paragraph 37)

(13) Disinfection as applied to the clothing and baggage of persons coming from infected areas is a valuable means of preventing the spread of plague into uninfected areas and should be carried out wherever possible (paragraph 38)

(14) The only measures of a compulsory nature which are permissible are those demanded by public opinion and capable of being put into operation by the people themselves (paragraph 40)

(15) The adoption of certain measures to facilitate quarantine, isolation and refusal of access in the case of villages (paragraphs 41, 42)

(16) The extension to the inhabitants of towns as well as villages of legal powers to prevent the access of persons coming from infected areas (paragraph 43)

(17) The power possessed by commissioners of prohibiting fairs in infected localities should be more freely exercised (paragraph 44)

(18) An efficient system of intelligence whereby the presence of plague is rapidly reported is of the utmost importance (paragraph 45)

(19) Certain alterations are suggested with a view to accelerating the receipt of infection reports by civil surgeons (paragraph 47)

(20) The present procedure in regard to the reporting of plague occurrences should be cancelled and regulations practically identical with those already in force for dealing with cholera should be substituted (paragraph 48)

(21) Substantial money rewards should be offered for information regarding plague occurrences during the hot weather (paragraph 49)

(22) The organization and training of a lay agency are most important measures, and

honorary plague officers should be appointed in all districts subject to infection (paragraph 50)

(23) The submission, by commissioners to the Inspector-General of Civil Hospitals, Punjab, of a quarterly return showing the grants-in-aid made to local bodies from provincial funds (paragraph 54)

(24) Rat destruction operations on the limited scale recommended by the Committee should be a charge on provincial funds (paragraph 55)

Current Topics.

SANITARY STANDARDS FOR WATER SUPPLIES

OUR readers may remember that in our January issue (*I. M. G.*, January 1910, p 23) we discussed at length the suggestive and valuable report on the water supplies of towns and institution in Madras which was carried out by Major W W Clemesha, I.M.S. (now Sanitary Commissioner in Bengal), and his assistants Assistant-Surgeons Aiyai and Mudaliyai in the King Institute. Since then Major Clemesha has commenced a similar survey of the bacteriology of the drinking water supplies in Bengal and in an admirable memorandum recently circulated to medical officers in military employ we are glad to see that Brevet-Colonel R H Firth, R.A.M.C. (the Sanitary Officer at Army Head-Quarters, India, and present Editor of the current editions of what was once known as "Parkes' Hygiene") has ably discussed the question as to how far European standards of chemical and bacteriological examination of drinking water can be applied to Indian supplies. It is a matter of common knowledge that most of the waters in daily use by the people of India are quite unsuitable according to European standards, and it is equally certain that "the morbidity results are not in proportion to the conditions", for example, we know of jails in Bengal where there is an average high rate of good health, far above that of the surrounding population, yet the results of the chemical analyses of the drinking waters are recorded as "suspicious," "bad," or at best "usable." Of course in these cases the boiling of the water minimises any risk.

We agree with Colonel Firth that we would not go along with those who would omit as useless a chemical examination, but we recognise its limitations and we are certain that a revised standard for India is necessary. "To adopt the standards in current use in England we should have to condemn ninety per cent of Indian waters." Local seasonal standards are the only safe guides, especially in places liable to heavy falls of rain.

The importance of the biological examination of water is becoming increasingly recognised, but we have still much to learn about the fauna and flora of Indian waters. The following three bacteriological examinations, says Colonel Firth, are essential, (1) a count of the total colonies in 1 c.c. of the water, (2) a test in milk for *Sporogenes enteritidis* in not less than 20 c.c. of the water, and (3) the inoculation of a series of tubes of bile-salt broth, with various quantities of water, using a modification of Thresh's adaptation of MacConkey's method.

The question remains—Can we lay down a bacteriological standard for drinking waters in India? Can we use the B coli as a true and workable index of bacterial purity or impurity? To reply to the latter question we must decide what we mean by a B coli communis. The term is used in an elastic sense by many English bacteriologists and many of the organisms which fall within such an elastic definition "are so common in all Indian waters that to regard their presence as indicative of faecal contamination means the wholesale condemnation of drinking waters in constant use."

On this point we may quote Colonel Firth in full—

"In this matter, therefore, we need to depart from English standards, recognise that while in England or Europe the bulk of the contamination of waters is due to human excrement in the form of sewage from towns, it is otherwise in India, where much of the fouling is from animals other than men. Further, that the true B coli communis of Escherich is by no means so common as many suppose in the faeces of man and other animals in India and, inasmuch as this bacillus is a very susceptible micro organism to forces of nature, inimical to bacilli generally, its presence in waters represents actually a recent and dangerous contamination. In the present scanty state of our knowledge regarding Indian waters, we are reluctant to suggest any precise numerical standard for this micro organism, even when so closely defined as above. Tentatively, the following proposals are advanced, in a good pond, tank, or surface water, there should be no B coli in 20 c.c. if present in 5 c.c. such water is suspicious, and if found in 1 c.c. or less it is to be condemned. A good river water should not yield more than one colony of B coli in 10 c.c., but if present excess of 20 per c.c. it is suggestive of a bad river water to point of condemnation. In the case of wells or springs the working limit for a good water may be placed at no B coli in 15 c.c. As isolated standards, these figures may be misleading and their true value can only be estimated when taken in conjunction with the nature of the other or associated micro organisms in the sample. A more extended series of working standards will be given further on, in which the undue focussing of attention on the B coli communis is avoided.

This brings us to the question of a possible classification of the various lactose fermenters, as isolated by the method described. It is true they are not the only group of faecal organisms, but they are undoubtedly one of the most important. For much work in this direction we are indebted to MacConkey, who suggested the division of all lactose fermenting organisms into the four following groups: I—those which do not ferment either saccharose or dulcitol, II—those which ferment dulcitol but not saccharose, III—those which ferment both dulcitol and saccharose, and IV—those which ferment saccharose but not dulcitol. Of itself, this laboratory classification is

of little value, unless we can say that one or other of the groups is characteristic of human or animal excreta, or better still if we can split the groups further into individual species for separate study as to their sanitary significance. MacDonkey's work suggests that groups I and II are more common in human feces, and groups I and IV in animal excrement, that is in England. Speaking from personal experience we are inclined to think that those which ferment dulcify but not saccharose are the more fecal type, but the group is not entirely composed of these objectionable varieties. Does the rule hold good for India? We do not know, beyond that Clemesha's work in Madras is suggestive that it does hold good. On this point we want more investigations, coupled with further work to determine whether the rule applies for all seasons of the year. Clemesha, Aiyar and Mudaliyar hint that the actual flora of both human and animal feces varies considerably at different times of the year, and that corresponding changes in the bacterial contents of natural Indian waters occur. The importance of knowing exact details as to these seasonal variations in both excrement and water are obvious."

The following is also quoted —

"A good well or spring water should contain no fecal bacilli in 15 c c, while can indifferent or usable water should contain no fecal bacilli in 20 c c. The presumptive evidence of fecal bacilli is drawn from the initial reactions in the lactose bile-salt broth cultures. Further, a good water from these sources should yield a total colony count of under 50 per cubic centimetre.

Pond, tank or lake waters should be condemned if they contain micro organisms of the Madras Class I in 1 c c, or less. These are very difficult waters to judge and much importance must be laid on the result of a critical personal inspection of the surrounding conditions, that is whether there is obvious evidence of fouling from local habitations, or the recent occurrence of rain. Incidentally it may be remarked that the presence or absence of *B. lactis aerogenes* is a valuable criterion, and the marked absence or scarcity of this particular micro organism from waters of this class is to be taken as an indication for condemnation. Where a surface water contains more than 5 fecal micro organisms to the c c, even if of the more resistant kind as included in the Madras Class III, it must be regarded with suspicion. A fair or usable pond water should not yield more than 200 organisms per c c on the total count. It should show no lactose fractors in less than 5 c c, while a desirable feature is the considerable presence of *B. lactis aerogenes*. As a rule, the less resistant type of bacteria, as grouped in the Madras Class I, should not be present in less than 15 or 20 c c. On the other hand, a good pond water may be taken to be one which contains less than 100 total colonies per c c. It should show no lactose fractors in 15 or 20 c c, be rich in *B. lactis aerogenes* and practically devoid of the Madras Class I group in 50 cubic centimetres.

River waters are notoriously variable. A bad river water will yield as many as 1,000 colonies on total agar count. The lactose fractors will be anything from 20 to 100 per c c. The class of water needs to be condemned. A usable river water may be taken to be one which gives 200 to 300 colonies on the total agar count per c c. The fecal organism should not exceed 2 to the c c and should be mainly of the more resistant varieties or those in the Madras Classes II and III. If any of the less resistant type are present or those of Class I, they should not be found in less than 15 cubic centimetres.

A good river water will not contain more than 100 colonies on total count on agar. If fecal organisms are present they should mainly of the Madras Classes II and III. Those of Class I should not be present in less than 50 cubic centimetres."

The whole memorandum published by Colonel Firth is well worth perusal.

LEUCODERMA IN DARK RACES

In the *Polychrome*, September 1910, the veteran Sir Jonathan Hutchinson discusses the subject of Leucoderma or acquired piebald skin. He discusses the question of these white patches being aggressive or not and decides that the majority of cases are so. Hebra said that leucoderma usually began in adult life, but cases are certainly seen in early childhood. It is suggested that leucoderma areata is only a congenitally piebald skin and that the white patches have been potentially present from birth, and only made evident by the pigment of the skin increasing during adult life. This is a matter worth observing in children of natives of India, that is to say, the skin in these cases may be already occupied by a pattern which is not visible until it is made conspicuous by morbid changes. Sir Jonathan says that it is perhaps too hastily assumed that these white patches are always aggressive, e.g., the portrait of leucoderma given in the *Atlas* of the New Sydenham Society was examined ten years after the picture was made and Sir Jonathan found "little or no change in the form or size of the patches beyond such as might be referred to the growth of the boy." He adds that leucodermic patches "always become more conspicuous in summer" and vary with the state of the health of the subject.

There is no doubt that this affection, often wrongly confounded with leprosy and therefore dreaded, is a very common complaint in India, where, of course it is very conspicuous on the dark skins and in less covered by clothing in many cases.

Its ætiology is unknown and it is usually considered a trophoneurosis. We have frequently seen very extreme cases where practically the whole body had become as white as snow. Castellani and Chalmers (*Tropical Medicine*, p. 1143) give a good account of the disease, indeed their chapters on skin diseases in the tropics are the best we know dealing with this hitherto too little studied side of the diseases of the tropics. They state that such white patches often appear after an injury, a burn or too strong caustication. The hands and face and legs often become more or less symmetrically affected, and patches, they tell us, slowly enlarge and coalesce. There is no change of sensation and no anaesthesia in the white patches, but there is often hyperæsthesia to heat and light stimulation. The disease when of considerable extent must be distinguished from albinism. There is an allied disease called Melong or Beta which has been described by Ziemann as common among West African negroes.

We would welcome any information on the prevalence of this disease among Indians.

PARASITIC GRANULOMA

UNDER this name Dr. Ferguson and Mr. Owen Richards of the Egyptian Medical School have an article of much interest in *Annals of Tropical Medicine*, etc (Liverpool, Vol IV, No 2, July 1910). The disease is described as—"a chronic elevated patch or warty growth in the skin, sharply localised and unaccompanied by other symptoms a warty and a flat form" and in their bodies "of the same class as those described in Oriental sore" have been found. These cases are well known and have been variously called in Egypt papilliferous degeneration of the skin, "pseudo-epithelioma," "granuloma of foot," "false elephantiasis," "fungating granuloma," names which not inaptly describe the outward appearances of the disease. It affects adults chiefly, it may be single or multiple, it is probably auto-inoculated by scratching. The infection is probably through the skin, and the rate of progress is essentially slow. The authors describe the flat and the warty form in detail and give cases one by Capt M F White, I.M.S., from Bushire, Persian Gulf. The facts reported are summarised as follows—

(1) Certain forms of skin affection caused by *Leishmania tropica* [Leishman-Donovan bodies] occur not infrequently in Egypt.

(2) They may be solitary or multiple (latter due to auto-inoculation).

(3) They consist essentially of a mononuclear infiltration of the subcutaneous tissues, which harbour sometimes large number of the parasites.

(4) The lesions manifest themselves clinically under two forms, the one a slightly raised, smooth flat patch, the other a prominent warty growth. They run a chronic course, and are accompanied by constitutional disturbance.

(5) They are best treated by excision and skin grafting.

The relation between the so-called "bodies" found in certain oriental sores and in this Egyptian granuloma and the serious constitutional disease known as *Kala-azar* is often talked about, but we know of no attempt to explain the extraordinary differences in the resulting infection. The identity has not been established for certain, morphologically no doubt they are very alike.

PELLAGRA

WE still await anything like a proof of Dr. Sambon's theory as to the origin of pellagra. It is known that this versatile writer expressed his opinion some five years ago that pellagra was caused by some protozoal parasite, which was transmitted by some blood-sucking insect. Such a theory was very easy to formulate and the following résumé of the arguments in favour of such a view are well summarised in a report by Dr. C. H. Lavinder of the U. S. Marine Hospital Service, who writes as follows—

"Pellagra is not due to maize either good or bad because—

(1) It is found in places where maize is neither cultivated nor eaten (? where)

(2) It is absent from many places where maize is the staple food of the population

(3) It has in many places either decreased or become more prevalent, without any change in the food of the people

(4) Its constant and peculiar distribution does not agree with the very irregular and ever changing distribution of spoiled maize

5 In over a century and a half, since the maize theory was first suggested, no one has been able to prove it

The belief that the disease has everywhere followed the introduction of corn cultivation is unfounded. Pellagra was first recognized as a specific disease in the beginning of the eighteenth century, but this does not prove that it was not prevalent long before that time.

Pellagra is a parasitic disease because—

1 For years the person affected may present some seasonal recurrences, which can only be explained by a parasitic agent with alternating periods of activity and latency

2 It shows a constant and characteristic topographic distribution

3 It shows a definite seasonal incidence

4 Its symptoms, course, duration, morbid anatomy, as well as its therapy, are similar to those of parasitic diseases

5 Of two places, almost contiguous, one may be affected, the other not

Pellagra is an insect-borne disease because—

1. It is limited, like malaria, sleeping sickness, etc., to rural places and more especially to the vicinity of certain water bodies

2. It has a definite seasonal incidence—spring and autumn

3 It affects, to a large extent, a certain class of people—the field labourers

4 It is not contagious and neither food nor water can account for its peculiar epidemiology

5 Within its endemic centres it affects all ages and frequently whole families

6 Outside its endemic centres only adults who have visited the infection areas present the disease and frequently only one or two members in a family are affected

Pellagra is conveyed by *Simulium reptans* because—

1 *Simulium* is found in the torrents and swift running streams of all pellagra districts

2 *Simulium* has the peculiar seasonal distribution of pellagra (spring and autumn)

3 *Simulium* is found only in rural districts. It is unknown in towns and villages. It does not enter houses

4 *Simulium* explains most admirably the peculiar limitation of the disease to field labourers

5 *Simulium* is the only blood-sucking insect which the British field commission has found in

its visits to numerous pellagious districts in Italy

6 *Simulium reptans*, like *Anopheles maculipennis*, has a world-wide distribution and explains the wide distributions of pellagra. It is found wherever pellagra is found.

7 *Simulium* causes epizootics in animals in America and in Europe.

8 Professor Mesnil has found a protozoal organism in *simulium*.

So far so good, but proof is still wanting.

THE FAR EASTERN ASSOCIATION OF TROPICAL MEDICINE

THE July issue (vol. v, 2) of the Philippine Journal of Science is full of interest as it contains many of the papers read at the first biennial meeting of the Far Eastern Association of Tropical Medicine held at Manila in March 1910.

The first paper is by Drs. A. J. McLaughlin and V. L. Andrews on infantile mortality among the Filipinos in Manila. There is a wonderful difference in the death-rate of the natives of the Island and of its imported inhabitants, *e.g.*, Filipino death-rate over 47, Spaniards 12, Americans 13, other Occidentals 14, Chinese 16. This enormous death-rate among the Filipinos is due to the enormously high infant-death-rate, or 48 per cent of all deaths are in children under 1 year of age. The disease causing this high rate of mortality are first and foremost beriberi (so called "infantile"), cholera, pneumonia, and in a lesser degree meningitis, enterocolitis, and other diseases.

This so-called "infantile beriberi" was first described in 1898 and 1900 by Hirota of Tokyo, and the term seems to have been loosely used by native practitioners for various forms of morasmous, but true cases have the following symptoms, *etc.*, child apparently well nourished and plump—skin anæmic, face full and swollen—limbs flabby—and at present—muscles anæmic, fat oedema, scites, pericardial sac full of fluid, right heart cavity enlarged, musculature coarse and firm—internal organs generally congested. Three principal symptoms, dilated and hypertrophied right heart, congestion of viscera and anasarca. Nearly all the children examined were breast fed under two months of age and had not taken rice or any artificial food. In Manila among the Filipinos 87 per cent of the infants who die of "convulsions" and of "beriberi" are breast fed and the deaths of breast fed children form 73 per cent of the total infant mortality. Facts which show us that the word 'breast fed' will not account for the avoidance of infantile complaints. The fact among the Filipinos is that the mother's milk is very poor milk, the mothers are underfed. The improvement of the physical condition of the Filipino mother is, therefore, an urgent question.

The next paper is one on the relationship of food to physical development by Capt. D. McCay, I.M.S., which is a résumé of his well-known work on the metabolism of Bengalis.

Dr. V. G. Heiser has an interesting paper on many unsolved health problems, which are, however, not as he calls them "peculiar to the Philippines." Plague has not yet appeared in these islands in spite of their proximity to China, but special precautions against its importation are wisely in force. Cholera, however, is practically endemic, and it constantly appears in sporadic outbreaks.

Mr. H. M. Neeb has an article on parthenogenesis of the female crescent body. The parthenogenesis of the tertian gamete is very important as if true it gives a natural explanation of relapses of malaria in persons who have long left the tropics.

Mr. G. Shibayama described malarial parasites in the orang-outang, and Dr. J. M. Atkinson has a good article on the well worn subject of malarial fever during the puerperium. Dr. Atkinson considers that malarial fever is more likely to produce abortion than the use of quinine and in the fever season he always prescribes small (2 grains) dose of quinine to pregnant women, he says, that the medical men of Hongkong agree that the ekbolic action of quinine is very slight.

Dr. Castellani has an article on tropical bronchomycosis, which is due to a new oidium-like fungus, not rare in Ceylon, and which is not the same disease as described by him in his *Tropical Medicine* (p. 921). He and Dr. A. J. Chalmers also described a new intestinal flagellate in man found in cases of what they call "*Agchylostomiasis*" but which others who are not purists are content to still call ankylostomiasis. Major A. Hooton, I.M.S., who represented India at this meeting, read an excellent paper on the clinical aspects of mycetoma and a sort of corn or callosity which complicates the disease. Major Leonard Rogers, I.M.S., has also written on the prevention of liver abscess by the proper use of ipecacuanha, a subject recently fully dealt with in these columns. Dr. W. E. Musgrove has an interesting note on a study of fifty fatal cases of intestinal amebiasis without diarrhoea.

THE Records of Indian Museum (Vol. V, pt. 3, Sept. 1910), is an excellent number, but the only article of special interest to medical men is the note on the larvæ of the *Toxorhynchites immisericors* (Wlk.), by Mr. C. A. Parva, of the Indian Museum. A 'census' of Calcutta mosquitoes is being made in the Museum and the larvæ of the above mosquito are found very common in the outskirts of Calcutta. The interesting point is that the larvæ of *T. immisericors* feeds greedily on the larvæ of *Stegomyia* and as *S. fasciata*, the yellow fever mosquito, is very common, in earthen pots

around Calcutta one may assume that the *T. zimmermanni* may prove a useful ally in case the Panama Canal ever lets yellow fever attack India

DR S T DARLING, Chief of the Laboratory of the Isthmian Canal Commission, Panama, has published a valuable contribution to the literature of malaria in a pamphlet modestly entitled *Studies in Relation to Malaria* (Washington Govt Printing Office, 1910)

He first describes the 11 species of anophelines which has been recognised in the canal zone and a complete description follows. The best method of keeping and of breeding out mosquitoes is detailed and descriptions are given of biting and infecting experiments, the estimates of gametes and the care of mosquitoes after biting are then described. The account of the malarial parasite in the mosquito is excellent and details of the experiments made are given. It is concluded that *A. albimanus* a very hardy mosquito is the transmitter of æstivo-autumnal and of tertian malaria in the canal zone

We have not here space to abstract much that is valuable in this very complete pamphlet. We note that mesh screening 16 holes to the inch is recommended against anophelines, but it would not be absolutely safe against *Steogomyia calopus*. There are some valuable notes on the effect of quinine on the parasite in the mosquito and in man. The note on latent malaria is also useful. We strongly recommend this valuable pamphlet to all workers on malaria.

COLONEL L A WADDELL, CB, C.I.E., I.M.S. (ret'd), has contributed to the Asiatic Quarterly (Oct 1910), an interesting note on ancient Indian anatomical drawings preserved in Tibet. A set of these drawings which Colonel Waddell found in Lhasa are now deposited in the India Office Library along with about 1,000 other books and manuscripts brought from Lhasa.

MAJOR LEONARD ROGERS, M.D., F.R.C.P., has now in the press a practical monograph on the treatment of cholera

OUR readers will have read with much interest Major L Rogers' able and well reasoned article in the *British Medical Journal* (Sept 24th, 1910), entitled "a simple curative treatment of cholera." This method has been wonderful success in Calcutta, and we hope that it will be widely used in other parts of India

THE *Journal of Tropical Medicine* (Sept 15th and October 1st, 1910), contained the report of

Dr L Sambon on Pellagra, we have in another column given a summary of the evidence brought forward

THIS is the day of the child. All lovers of children, students of child life and workers for child welfare will welcome the new and thoroughly representative journal *THE CHILD*, the first number of which has just appeared. Dr T N Kelynack has undertaken the editorial oversight and is being assisted by a large staff of medical, educational and philanthropic experts. The first number contains communications from such well-known authorities as the Bishop of Ripon, the Earl of Meath, the Right Hon John Burns, M.P., Sir Lauder Brunton, M.D., Prof H Griesbach, Dr A Mathieu, President Stanley Hall, LL.D., Sir James Yoxall, Rev Arthur E Gregory, D.D., Miss Temple Oime, LL.D., J Lewis Paton, M.A., Rev W T A Barber, D.D., and many others. Leaders in all branches of child study in this and other lands are among the contributors. *THE CHILD* provides a much-needed medium for the co-operations of workers and an organ for the co-ordination of work relating in any way to child betterment

Reviews

"**A Treatise on Materia Medica and Therapeutics**"—By RAKHALDAS GHOSH, L.M.S., Cal University Fourth Edition Edited by Lt Col J. T. Calvert, M.B., M.R.C.P., I.M.S., Professor of Materia Medica, Medical College, Bengal. Published by Messrs Hinton & Co, Calcutta. Price, Rs 5

NOT much need be said about a book which has reached its fourth edition in a few years, and which has been very favourably reviewed in our pages on previous occasion. The book is undoubtedly one eminently suited for the needs of the local practitioners and officers in charge of isolated dispensaries, whilst the student who has thoroughly read its contents need fear no local examination. The work contains chapters on pharmacy, dispensing, pharmacology and administration of drugs. The chapters on pharmacy and dispensing are amongst the best in the book, and will be found particularly useful for compounders and dispensers. In the present edition the process of revision appears to have been carefully carried out, and the whole work brought up-to-date. We should like to see a copy of this book in the hands of the medical officers of all local fund dispensaries, whose only literature is too often a copy of the *British Pharmacopœia*, which is almost out of date by the time it leaves the printer's hands. Printed on excellent paper with few typographical errors and with an attractive binding, it is a credit to the Calcutta publishers

Sewage Disposal in the Tropics—By W. W. CLEMESHA, M.D., D.P.H., Major, I.M.S., Sanitary Commissioner, Bengal. Calcutta: Thacker, Spink & Co. 1910. Price, Rs. 10

THIS is an important and valuable work, written by Major Clemesha, I.M.S., the able and energetic Sanitary Commissioner in Bengal. The systematic study of the biological process of sewage disposal in the tropics may be said to have commenced when Dr. Fowler was associated with Major Clemesha in an inquiry into the use and abuse of septic tanks in Bengal in 1906.

In Europe we know that biological methods of sewage disposal have given in many cases remarkably good results. The present work is intended to show how and to what extent these methods can be applied to the conditions of tropical towns and cities.

The problem of the removal of night-soil in India is as is well-known an important and often difficult one. The trenching system, except in well managed institutions like jails, has been in nine cases out of ten a failure. Even our cantonments still cling to primitive methods. The need, therefore, for an improved and modern method is imperative and heartily welcome. A book like this which gives us the practical information we require in such a matter.

Major Clemesha, in Chapters II and III, describes the latrine most useful for this purpose. Chapter IV studies the chemical action that goes on in the tank and other chapters are devoted to the "optimum rest in the tank and to the analysis of sludge and the gases given off. Other chapters describe aerobic filters, contact-beds, the "dumping septic tank," the use of the tank in small drainage schemes, and chapter 16 is devoted to the all-important subject of the final disposal of the septic tank effluent. In India the danger of the pollution of some source of drinking water is ever present and the problem is more difficult than in Europe. "Effluents" (writes Major Clemesha) "must always be looked upon as potentially dangerous," and the simplest method of disposal is by passing them over land, with the important proviso, however, "as long as plenty of land is available." Land is easily clogged with colloid material, and such land can be profitably cultivated, and grass, oats, 'lucerne,' etc., grown. In Bengal a suitable soil is rarely available, but in laterite soils as are common in Madras, this method can be largely used.

To discharge the effluent into the sea is only possible in a few towns in India, therefore, it remains to discharge it into specially constructed tanks or pools, and under the strong sunlight of India such water rapidly becomes purified, fish may be bred in them and lotus plants grown, and the methods of disposal are the discharge into river or other watercourses. With rapid and ample dilution under the tropical sun such rivers have an undoubted power of purifying themselves, but though the effluent is certainly better than the raw sewage, which, as a matter of fact, does

certainly find its way into the rivers, yet the method is not recommended.

The use of septic tank effluent in boilers, in mills and factories, would be satisfactory, only that there exists a strong prejudice against it.

It becomes, therefore, in India especially necessary to sterilise the effluent before it is discharged and fortunately this can be effectively done by the use of five grains of chloride of lime per gallon. The chloride of lime should be added to the effluent in the form of a liquid mixture. This method is reliable and rapid and in a few minutes renders an effluent practically sterile.

Useful chapters are added on trenching grounds and on incinerators.

The whole book is valuable. It is clearly written and eminently practical. It should be in the hands of every medical officer, municipal engineer and sanitary inspector in India.

Tropical Medicine and Hygiene, Part I—

By Dr. C. W. DANIELS and Major E. WILKINSON, F.R.C.S., D.P.H. Part II, by Dr. C. W. DANIELS and Lt.-Col. A. ALCOCK, C.I.E., F.R.S., I.M.S. (retired). London 1910. John Bale Sons and Danielsson, Ltd. Price 7s 6d each part.

THE student of tropical diseases of the present day is certainly well provided with text-books. Recently we reviewed Castellani and Chalmers' *Manual of Tropical Medicine* (Baillière, Tindall & Cox), and now we have before us two elegant little volumes on Tropical Medicine and Hygiene by Dr. Daniels of the London School, assisted by Major Wilkinson, I.M.S., now Sanitary Commissioner, Punjab, and in Part II, Lt.-Col. A. Alcock, F.R.S., C.I.E., I.M.S. (retired), has a useful chapter on snakes and snake venom.

The volumes before us have, however, a distinct place, they give a consideration of the prominent diseases of the tropics more from the point of view of the practical sanitarian than of the physician or surgeon.

Part I is concerned with the diseases due to the protozoa, *viz.*, malaria, blackwater fever, malarial fever, yellow fever, trypanosomiasis, kala-azar, oriental sore, the relapsing fevers, syphilis, yaws, granuloma of pudenda, amoebæ, etc. In all cases the question of etiology and prevention is carefully discussed. A useful appendix to Part I gives some notable dates of the chief discoveries in Tropical Medicine and a very clear account of ticks and of the most important groups of the diptera. The book is well illustrated, the two coloured plates being especially good.

Part II, diseases due to the Metazoa is by Dr. Daniels, with a chapter on Snakes by Lt.-Col. Alcock, F.R.S. This deals with the diseases due to trematodes, tapeworms, and filariæ, ascariis, leeches and snakes and snake venom. The book is exceedingly well written and except for somewhat numerous "corrigenda" is very clearly and well printed and bound.

We can strongly recommend these two volumes as text-books for all going in for examinations in Tropical Medicine and Hygiene.

An Introduction to Biology for Students in India—By R E LLOYD, M.B., D.Sc (Lond.), CAPTAIN, I M S Longmans Green & Co, 1910

THIS most useful book has been written by Capt Lloyd, I M S, for medical students in India, as it is now necessary for all who wish to graduate in medicine at the Calcutta University to have a knowledge of the common invertebrate animals of India.

The book consists of under 300 pages and deals with the protozoa, coelenterata, annelida, nematodes, mollusca, arthropoda, and insecta. Then following an interesting chapter on the unity and diversity of living things, and three excellent chapters are devoted to evolution, variation and heredity, especially the now fashionable cult of mendelism. It is interesting to note that candidates for examination in biology at Calcutta must submit their books of drawings. This is an absurd and extremely vexatious rule. We may agree that no one will become a good biologist who cannot draw well, but it is absurd to condemn medical students to a lower place in an examination merely because they are born incapable of drawing. This is a regulation worthy of the *régime* at Netley over twenty years ago. We think that a glossary would be very useful addition for use even of students who are ignorant of Greek and Latin. The terms used in biology must be very difficult to those who have not even an elementary acquaintance with the classical languages. We open p. 135 at random and find the following "Branchiopods" (fresh-water crustacea), "biramous," "protopodite," "endopodite," "exopodite," "uninamous"—all these words are found in half a page, but not one of them is given even in Dorland's "Medical Dictionary," and how an Indian student is to understand these words it more than we can see.

This is the only criticism we feel called upon to make. The book otherwise is admirably adapted for biological classes, and we can strongly recommend it for use in all the medical schools of India.

The Laws of Heredity—By G ARCHDALL REID, M.B., F.R.S.E.D Methven and Co, Ltd, London, 1910

DR ARCHDALL REID is well known to many of our readers as the author of some of the most fascinating books on heredity and evolution which have been published in recent years. His last book entitled "The Principles of Heredity" only appeared about a year ago and now we have a large volume on the Laws of Heredity which will we expect rank for long as the most complete exposition of this difficult subject. The book is very clearly written and should be intelligible to the non-scientific reader. He adopts the deductive form of reasoning which has been used with success by other writers, *e.g.*, Weismann.

It is impossible here to do more than indicate to our readers the vast amount of interesting reading in this volume. The Lamarckian theory is ably

handled and disposed of in one chapter, and we should no longer hear of the transmission of acquired characters. We especially recommend the chapter on variation, and the now fashionable doctrine of mendelism is ably handled and its shortcomings pointed out. The chapters which will attract most the attention of medical men are those on evolution as regards alcoholism which we heartily endorse, and on evolution of diseases. We strongly commend this careful, logical and thought-stirring book to all of our readers interested in evolution and heredity.

Duodenal Ulcer—By B G A MOYNIHAN, M.S. (Lond.) F.R.C.S. Published by W B Saunders, Philadelphia and London

TEN years ago ulceration of the duodenum was looked upon as a rare disease, and its confident recognition during life was believed to be hardly possible, but all this has been changed by the aggression of surgery in the field of the physician, happily changed, for though *post-mortem* records of duodenal ulcers were common enough it was not until 1883 that Chivostec for the first time made a diagnosis verified at autopsy. Cordivilla of Bologna inaugurated the surgery of chronic duodenal ulcer in 1893 when he successfully operated on a case that had gone on to stenosis, and in 1894 Mr Percy Dean performed the first successful operation for perforation at the London Hospital. Since then the workers have been many, the two chief being W J Mayo and the author of the volume before us, the first complete surgical monograph on duodenal ulcer in the English language.

A concise history of the subject is followed by a chapter on classification which is certainly the weakest part of the volume, the only weak part let us add. The ulcers associated with burns, uræmia, tuberculosis, are obviously classed, according to their predisposing cause, but what of the ulcer found with melæna neonatorum and of the chronic ulcer? As matter of fact, Mr Moynihan conceives all duodenal ulcers to be peptic ulcers, caused by the action of the acid chyme on a mucous membrane the vitality of which is from some cause low. Weakness, wasting and anæmia are postulated in the infant, but by no means are all infants wasted, weak and anæmic who suffer from melæna, or chronic indigestion, or indigestion with the symptoms of acid gastritis, in which hyperchlorhydria has been recognized by chemical analysis of the gastric contents probably at some earlier date, is the invariable antecedent of duodenal ulcer that is chronic. The work of Ewald, Einhorn, Martin and others has established hyperchlorhydria as a definite condition. It is surely surgical arrogance makes the author rashly assert hyperchlorhydria is the medical term for the surgical condition duodenal ulcer. The terms 'acid dyspepsia', 'hyperacidity', 'hyperchlorhydria', are then not "only dangerous as concealing the fact that the condition which causes them is not functional, as

is implied, but organic, but they are misnomers also, for the presence of excess of acid is most infrequent." Surgical dogmatism this. What then is the predisposing cause which renders the duodenal mucous membrane liable to peptic ulceration which becomes chronic? Hyperacidity might well be this cause and its symptoms are admittedly those of chronic duodenal ulcer. Nor is it inconceivable that the excess of function which leads to ulceration is succeeded by depression of function, hypoacidity, when chronic duodenal ulceration has supervened. We offer this as a suggestion to the surgeon who makes of hyperchlorhydria a mere medical term.

Nothing could be more lucid and satisfactory than the chapter on differential diagnosis, or more detailed and well reasoned that that on perforation. The operative technique is most fully described and beautifully illustrated. Its excellence is demonstrated by the success which has attended Mr. Moynihan. A voluminous appendix gives full particulars of his first 189 cases.

This monograph is full of information and cannot be too strongly recommended not only to the surgeon but also to the physician lest he fail to recognize the supervention of a surgical condition upon what he has in the first instance rightly diagnosed as acid gastritis.

The publishers and printers have done their work handsomely, so that it is a pleasure, apart from its intrinsic value, to handle a book so well gotten up.

The Compendium of Medicine and Pharmacy—By C. J. S. THOMPSON. J. Bale Sons and Danielson, Ltd. Third Edition, pp. 335. Price 5s. net.

THIS handy little pocket book of reference has now reached its third edition and has, therefore, passed beyond the stage of questioning. It is a marvellous little book, full of information from first page to last, as the following extracts from the table of contents will show, *e.g.*, recent remedies, unofficial formulæ, stovaine solutions, surgical dressings, selves and mulls, baths, invalid food, quarantine, index of disease and remedies, incompatible drugs, oculist's prescription terms, excipients, urine analysis, stains, bacteriological memoranda, acidulous radicals, milk analysis, Poison Act, poisons and antidotes, emetics, doses for dogs and cattle, analyses of wines, midwifery table, freezing mixture, saturation tables, boiling points, thermometers, metric system, grains and grammes, hypodermics, sprays, lozenges for throat, U.S., French, German, British Indian. Addendum W.B.P., posological tables such as the *farrago nostræ libellæ*. There is no doubt such little books are very useful and we know none more useful than Dr. Thompson's Compendium.

A Handbook of Medical Diagnosis.—By J. G. WILSON, A.M., M.D., Professor of the Practice of Medicine and Clinical Medicine in the Jefferson Medical College and Physician to its Hospital, etc., etc. 1 Vol., pp. 1435 with 408 Illustrations, and 14 Full-page Plates. Published by J. B. Lippincott Company, Philadelphia and London. Price 25s. net.

THIS, which is quite the best book of its kind that it has fallen to our lot to review, is divided into four parts. The first part deals with medical diagnosis in general, with medical topography, the examination of the patient and case-taking. The second with the methods of examination, general and special, of the various organs also of the special examination of the blood, sputum, transudates, exudates, etc. The third treats of the symptoms and signs, and the fourth and longest of the clinical applications of the preceding divisions to the diagnosis of special diseases. This part comprises 15 sections in which not only is the diagnosis of the specific infections, of constitutional diseases, and of diseases of the digestive, respiratory, circulatory, and nervous systems discussed, but then an excellent section on the diagnosis of diseases caused by animal parasites, on the chronic intoxications, food poisoning, auto-intoxication, and of the blood and ductless glands, etc. After the involved language of the usual German translations, it is a treat to read this excellently written book, which is thoroughly up-to-date every page bearing testimony to the case and thoroughness with which it has been written.

It is profusely illustrated, and all the illustrations are good many admirable, the illustrations of diseases being in most instances from photographs of actual cases. We can thoroughly recommend this handbook to medical officers in this country, who are so often isolated from any opportunity of a consultation, and are in doubt about the diagnosis of a difficult case. They will find in this volume up-to-date information of easy access and clearly stated, which will enable them to review at short notice the various points bearing on their obscure case and which cannot fail to be of the greatest assistance to them in its elucidation.

An Introduction to the study of Hypnotism Experimental and Therapeutic—By H. E. WINGFIELD, M.D. (Cantab.) London, 1910. Baillière, Tindall & Cox. Crown 8vo, pp. viii+175. Price 5s. net.

THIS is an excellent little book and very clearly answers the question proposed by its author, Dr. Wingfield, *viz.*, what is Hypnotism? It will serve admirably as an introduction to the many longer treatises on the same subject. It is intended for those who know little or nothing of hypnotism and it will certainly prove of service to them. It is divided into seven chapters, one introductory and historical, a second explanatory on subconsciousness and the nature of primary and secondary conscious-

ness The third chapter gives a clear account of methods of induction of hypnosis, the phenomena of hypnosis and its stages are next dealt with, and chapter V has a useful account of hallucinations and post hypnotic suggestion. The sixth chapter is very good, it gives an account of the principles of treatment by suggestion, in hysterics, vaginismus, neurasthenia, morphine habit, constipation, diarrhoea, enuresis, sexual disorders and even sea-sickness. The last chapter deals with the danger of the unqualified and irresponsible use of hypnotism, as exemplified by the doings of Madame Caid among undergraduates at Cambridge and those of other itinerant "professors." The opinion of Mull is cited to the effect that "we must admit the possibility that a crime may be committed in this way (under suggestion). It is possible in some subjects, but many would refuse it even after a long hypnotic training."

We commend this excellent little book to all interested in this subject.

A System of Medicine—By SIR CLIFFORD ALLBUTT and H. D. ROLLESTON Vol. VII Macmillan & Co., Ltd., London.

THIS great work is now nearing completion, and this, the seventh volume deals with diseases of the muscles, the trophoneuroses, diseases of the nerves and of the vertebral column, and of the spinal cord. The eighth volume now in preparation will contain diseases of the brain and the ninth volume on diseases of the skin will complete this magnificent *System*.

Extensive changes have been made in the seventh volume before us. The section on muscle diseases has been considerably enlarged and freely illustrated, with several new articles, e.g., on Myasthenia gravis by Dr. F. Buzzard. The article on Myopathy has been revised by Dr. F. E. Batten. The section on the Nervous System has been largely re-written owing to the advances in Neurology in the past ten years. The veteran Sir Wm. Gowers has revised his article on medical ophthalmology, and Dr. Mott has a masterly introduction to neuropathology. There are many other new articles on what will be to many "new" diseases. The spinal cord diseases are especially well described, and if we can say that any are superior we might mention those that pleased us most, the chapter on tabes by Dr. Omerod and on Caisson disease by Dr. L. Hill. The account of Landry's Paralysis by Dr. F. Buzzard is also excellent.

Altogether we have nothing but praise for this volume. It is a worthy successor to the six preceding volumes.

The Extra Pharmacopœia—By MARTINDALE and WESTCOTT, 14th Edition with supplement, pp. 1054 + 80, size 6½ × 4½ × 1. Price 12s. and supplement 3s. 6d. net. H. L. Lewis, London.

THE mere announcement of a new edition of this invaluable work is enough, for a handbook

which appears in its 14th edition has established its position beyond cavil.

Yet the 14th edition is far from being a repetition of the 13th which appeared in the middle of the year 1908. The new edition is a nicer volume to handle, it is somewhat larger and thinner, and in every way a more comfortable book for the pocket or handbag. Much new matter has been introduced. Among the more important new chapters are those on the lactic acid bacilli. This is one which our readers should study. It proves that dry preparations of the lactic acid bacillus can be relied on. The authors take a common sense view of the value of this fashionable form of treatment. Certainly a mass of information is compressed into the 12½ pages dealing with this subject. The section on organic arsenic compounds is very useful, 15 pages, and points out the dangerous results which have too often followed the use of atoxyl especially. Followers after new drugs should carefully study this very complete chapter. The chapter on Radium has been completely re-written. The last word seems to be that Radium, while admirable for rodent ulcers of small extent had only had a very partial success in case of epithelioma. Numerous other changes have been made, and we note that under head chlorine a statement is quoted that chlorine is so efficient as a disinfectant that a strength "2 parts per million are sufficient to sterilise water" (*Lancet*, vol. II, 1908, p. 1846). A description of more than 100 new patent or proprietary drugs are added to this edition. Vaccine therapy is fully discussed, as is also the subcutaneous use of mercury, and reference is made to the treatment of our late King Edward VII, by vaccines given by the mouth, not by the usual hypodermic method. Wasserman's test is discussed, so is organic therapy. The section on poisons and the limits of supply on prescription are fully dealt with. All the usual tables, which form so practical and useful a feature of older editions are retained. The *Supplement* is quite separate, and is an organic analysis chart intended to assist in the recognition of a number of organic chemicals both natural and synthetic which are used therapeutically. It is to be clearly understood that this supplement is an addition to the volume and in no way does it contain anything removed from previous edition. It is useful to a few only and not necessary to the owner of the extra pharmacopœia, to whose notice we commend this new and largely revised 14th Edition.

Elements of Pharmacy and Materia Medica and Therapeutics—By SIR WILLIAM WHITLA. Ninth Edition (32 thousand). London, 1910. Baillière Tindall and Cox. Crown 8vo., pp. xiv, 672. Price 9s. net.

THE sight of this familiar volume brought us back in memory some quarter of a century,

and here again accurate, admirable and up-to-date appears the ninth edition of Sir Wm Whitla's *Materia Medica* well known and appreciated by generations of students. When a book has run to a sale of 32,000 copies criticism is useless, and it will suffice to merely mention that a new edition of Whitla's "*Materia Medica*" is out. Nevertheless, the new edition is not a reprint of the old, it may claim to be a new volume, much has been re-written and all has been revised and brought up-to-date. There is a section running to no less than 125 pages on non-official remedies, which will commend it to those seekers after new drugs who are so many in India, several hundred new remedies are here described and commented upon, and there is a useful account given of the new serum and vaccines. The volume is intended to be a companion to Sir Wm Whitla's well known "*Dictionary of Treatment*". As in the previous editions the section on Pharmacy is particularly good.

We can confidently recommend the ninth edition of Whitla as being as good as its predecessor's—higher praise could not well be given.

Journal S. I. Association—We have received the first copy of the new *Journal of the S. Indian Association*, July 1910. The Society was formed by Dewan Bahadur R. R. Row and the Hon'ble Mr. V. K. Anjaiah and others for the encouragement of "the specialised study of various branches of knowledge which bear in a direct and practical manner on the progress of India."

The first issue of the *Journal* contains a very interesting article by Dr. Morris W. Travers, F.R.S., in some "recent researches on atmospheric air", another by Mr. C. W. E. Cotton describing the Lahore Exhibition. The Presidential Address by Mr. S. K. Aiyangar, M.A., has a valuable historical article on the ancient Chola Empire in South India, which flourished in the days of the great Mauryan Emperor Asoka and after the division of the Empire of Alexander the Great.

We wish the new *Journal* of this flourishing Association every success.

Vaccine Therapy, its Theory and Practice—
By R. W. ALLEN, M.D. (3rd Edition)

THIS work, which now extends to 277 pages, will form a useful addition to the libraries of the various Laboratories, that the civil surgeons and practitioners in India, with their multifarious responsibilities, will be able to put into practice the elaborate methods described therein is not to be expected, so that for them the book will be more of academic than practical interest. The first four chapters deal with opsonins, the opsonic index, the preparation and mode of administration of vaccines. The remainder of the book deals with the vaccine therapy of the various bacterial infections, e.g., infections by staphylococcus, streptococcus, pneumococcus, etc., one

chapter is devoted to infections by the bacillus tuberculosis group, another to vaccine therapy of eye disease. The author's conclusions in regard to the utility of the opsonic index are of interest, and he states, "It must not be thought from the above that I consider the opsonic index as entirely useless as a guide to the immunizing processes going on in the body. In such infections as those due to the staphylococcus and pneumococcus, where the chief defensive mechanism appears to depend on phagocytosis, the opsonic index probably affords a sufficiently accurate guide, but, unfortunately, these are just the cases where local signs and general symptoms equally well suffice." The author expresses the opinion that the isolation of the bacillus typhosus from the urine is a matter of considerable difficulty. As the bacillus typhosus occurs in the majority of cases in large numbers and in pure culture in the urine it can be isolated therefrom with great ease. It would be interesting to know how often he has recovered the bacillus typhosus from the stools by the bile method which he recommends. He would be well to supplement his statement regarding the isolation of the bacillus typhosus by mentioning that it is in the first week of the disease that the highest percentage of positive results are obtained. On pages 152 and 160 the author refers to the results of the enquiry on enteric fever in India recently carried out; he is not, however, very clear on the history of this investigation. As stated in the *Indian Medical Gazette*, July 1908, E. D. W. Greig, I.M.S., was deputed to Germany by the Secretary of State to study the methods employed there in the campaign against typhoid fever, and his report on this enquiry was published in the *R. A. M. C. Journal*, February 1906, on his return to India in 1906 an investigation on the same lines was commenced, and one of the results of which was the scientific proof of the existence of "Chronic Carriers" and then casual connection with epidemics of enteric fever in India. Greig submitted a report, a summary of which was published in the Annual Report of the Sanitary Commissioner with the Government of India, 1906, page 16, onwards, and this was issued subsequently as a Scientific Memoir, No. 32, 1908. As is well known the occurrence of bacillus typhosus in the bile and the mechanism of the production of the "Chronic Carrier" was worked out in Germany by the Strasburg School, Foister, Kaysar, etc., and by a curious error the author attributes this original investigation to Semple, one of the workers on the above-mentioned enquiry of the Government of India, who, so far as we are aware, has never claimed priority. The author would do well to read the admirable summaries of the literature on the "Typhoid Carrier," which will be found in recent Annual Reports of the Sanitary Commissioner with the Government of India. The author divides bacillary dysentery clinically into

the classes, acute and chronic. The description given under the latter heading, (1) ("Cases of weeks or months duration, in which the patient is still passing dysenteric stools, either continuously or intermittently"), would apply, also, to amœbic infections which should, of course, be treated with Ipecacuanha, in order, not only to cure the dysentery, but to prevent the very serious complication of liver abscess.

Advice to Consumptives—By NOEL DEAN BARDSWELL, M D

THIS little book should prove very useful to medical men by helping them to solve the very difficult problem of the treatment of patients after they leave the Sanatorium. The author gives careful and sound advice on this subject. He has made a practice for some years of noting every question asked him by patients *apropos* of consumption and its treatment.

Mentally Deficient Children: their Treatment and Training—By G E SHUTTLE WORTH, M D, and W A POTTS, M D. Pages xviii+236, size, 8vo. Third Edition. Price 5/- net.

WITHIN recent years the care and treatment of the mentally defective, by which term is meant all those who are unable to compete on equal terms with their normal fellows, has attracted very much attention in Europe and North America. This book, which relates the history of the efforts of the pioneers in this movement, which classifies and describes the varieties of mental defect in a scientific manner, and, which details the forms and methods of instruction employed in various special institutions, is an extremely interesting one.

In India the subject has not yet been touched. It is one of the many great problems for the statesman of the future. And, it will be a big subject, for, the number of deaf mutes as enumerated at the last census—all of whom must be defective mentally to a greater or less degree—is exceptionally large in this country. Medical officers of large schools, reformatories or mission institutions, where numbers of waifs and strays are congregated, will find this book a most useful one especially in its latter chapters. The degree to which an extremely defective child can sometimes be trained, is really remarkable.

The authors are to be congratulated on having so completely dealt with this subject within the compass of such a portable volume.

A Text-Book of Medicine—By G DIEULAFOY. English Edition. 2 vols. Royal 8vo. Pp xv+2,081. Illustrations 105. Coloured Plates. Price 25s net. London, 1910. Baillière, Tindall & Cox.

THIS great work is well known in France where it has reached its 15th Edition, so it was time that it was offered to English students, or it had already been translated into several other European languages.

The author Dr. Dieulafoy was a pupil of the great Trousseau, and is himself Professor at the *Faculté de Médecine de Paris*, and Physician to the Hotel Dieu.

We have been much impressed with our perusal of these handsome volumes.

It is very refreshing to find subjects handled in a way different from what we have been accustomed to and new lights are constantly thrown on old subjects. The diseases special to the tropics receive no special attention, nor is this necessary nowadays, when so many good special books exist.

The volumes are very well printed on clear, clean and thin paper, indeed for large volumes they are a model of the printer's art and we know of many thick paged tomes that would be more useful if produced in the admirable way that Messrs Baillière, Tindall & Cox have brought out these two volumes of the distinguished French Physician. The translation has been ably done by Dr. V E Collins and Dr. J A Liebmann.

A Text-Book of Obstetrics—By BARTON COOK HIRST, M D, Professor of Obstetrics in the University of Pennsylvania. 8vo. 992 pages. 847 Illustrations, 43 in Colour. Price 21/-. Philadelphia and London. W B Saunders & Co. Sixth Edition, 1909.

WHEN a book costing a guinea has passed through six editions in eleven years, its popularity may fairly be said to be established. One cannot but think highly of this 'Text-Book of Obstetrics,' but like every book that was ever written it is open to some criticism. In this edition the author has included a large number of gynecological operations, and in the preface he strongly justifies the step. This addition to what is already a large volume will not be favoured by most readers, as the line between obstetrics and gynecology is generally recognised as a fairly well-marked one.

The whole work is thoroughly up-to-date, it contains 847 excellent illustrations, 43 of which are coloured. The text is written in a most readable style, and the inclusion of a few historical facts adds greatly to the interest of the reader. The author advocates expressing the placenta soon after the birth of the child, as the surest way of avoiding *post-partum* hæmorrhage. This in itself as a statement of fact cannot be objected to, and when it is carried out by a skilled obstetrician is an interference with a natural process that will do no harm. But, as a principle of treatment in a normal labour one cannot bring oneself to support it. The uterus knows very well how to look after itself in such cases, if it is only given time. Plugging of the uterus is recommended as the stand-by in the treatment of *post-partum* hæmorrhage, and too little stress is laid on the value of hot water in the treatment of these cases.

Other points could be easily referred to regarding which some authorities would not hold with the teachings of the author, but such differences must always occur between the views of different individuals and even of different schools. But when we regard the book as a whole, we feel that we can without hesitation recommend it as one of the leading text-books on obstetrics.

International Clinics—A quarterly of illustrated clinical lectures and especially prepared original articles, etc. Edited by HENRY W. CATTELL, A.M., M.D., Philadelphia, U.S.A. Vol. I. Twentieth Series, 1910. Philadelphia and London: J.B. Lippincott Company, 1910. Pp. 301.

THIS volume keeps up the high standard of its predecessors. The special articles include three papers on the diagnosis of syphilis, one on 'Serum Diagnosis' by Homer F. Swift, one 'Further Studies on the Serum Diagnosis of Syphilis with especial reference to the Antihuman Hæmolytic System' by H. Noguchi, and one on 'The Newer Diagnostic Methods of Syphilis of the Nervous System' by B. Sachs. There is general argument that a positive Wassermann reaction means active syphilis, while, unfortunately a negative reaction does not exclude it. The propriety of treatment by mercury, and the observation of its effects is well defined by the use of the reaction at regular intervals, and it is interesting to find that our old and valued friend—unction—comes out with great credit in a comparison of different methods of using mercury. Noguchi has an interesting paper on his method of serum diagnosis of syphilis with which he claims a higher percentage of positive reactions than by Wassermann's, and maintains that the latter gives positive reactions in leprosy, yaws, certain cases of malignant tumour and malaria. Under 'Diagnosis and Treatment' are articles on Pellagra and on the use of tuberculin. Under 'Medicine' are useful papers on purin metabolism and gout, and on chronic mucous colitis. The surgical articles are on tuberculosis of the thyroid gland, and a very interesting one by E. G. Beck on "The Diagnostic value and Therapeutic effects of the Bismuth paste in Chronic Suppuration." Dr. Beck introduced the method three years ago and now relates his three years' experience of it, giving a number of illustrations including stereoscopic radiographs. For diagnosis of the ramifications of sinuses injection of bismuth paste and examination by X-rays is far superior to the usual probe or coloured fluids as these skiagrams show. Especially useful is the method in deep sinuses extending towards the kidney or vertebrae and many useless operations can be saved by adopting it. The limitations in its application and the occasional dangers in its use, from poisoning, are dwelt upon. There are also articles upon Gynaecology, Eye-strain among school children, the rational treatment of tabes, and the anatomy of the portio vaginalis of the uterus in relation

to conception. The number is one of unusual interest and deals with the latest researches on a number of subjects, making it of great value to all practitioners.

Hygiene and Morality. A Manual for Nurses and others—By LAVINIA DOCK. G. P. Putnam & Sons, New York, 1910.

MISS LAVINIA DOCK is the author of a couple of excellent books for nurses, viz—*Materia Medica for nurses* and a *History of Nursing*. In the present volume she ventures where many fear to tread, viz, into a discussion of the great social question of prostitution and venereal diseases. It purports to describe the venereal diseases for the instruction of nurses and does so with commendable delicacy of language. Part II of the book, some 50 pages, is devoted to prostitution and the "white slave" traffic and Part III consisting of about 70 pages is devoted to the prevention of venereal disease. The control and regulation of prostitution is treated from an historical point of view. The authoress points out truly enough, that attempts to control or punish usually took the form of punishments for women, rarely for men. We may admit the absence of logical sequence from the so-called double moral standard. Miss Dock then goes on to trace the history of modern systems of regulation. The so-called "Continental System for the Regulation of Vice" is still in force in many countries, but our authoress says it has been recently discarded in Italy and condemned in France, but attempts have been made to introduce the system into the United States. An interesting account of the various Contagious Diseases Acts in Great Britain is given and the active part taken in opposition by Harriet Martineau, Dr. C. Bell Taylor and finally Miss Josephine E. Butler is recorded. Miss Butler's crusade, the struggle against the Acts, is fully described. The decline of medical support of regulation is dated as from 1874. An account is given of the first and second conferences for the prophylaxis of venereal diseases at Brussels. The objections are pointed out, the one-sidedness of the regulations, and the increase of clandestine prostitution, of which certain startling figures are given. This leads naturally to an account of the infamous white slave traffic.

The weak point of the volume before us is the section devoted to prevention. It is easy to say that prostitution "must be prevented," "must be rooted out." We cannot say that we are impressed with the practicability of the various remedies proposed, moral education is certainly needed, accidental infection can largely be prevented by ordinary surgical asepsis, apparently the enfranchisement of women is the first step, but will the determination of "women politically free" effect the downfall of prostitution as a social and commercial institution?

The appendices give extracts from the various "regulations" and one deals with statistics of criminal assaults on young women. We recommend the book to all interested in this very important social question. We cannot say that we have been impressed by the practical nature of the endeavours to suppress this blot on civilisation, but the question must be faced by advancing society and books like this are necessary and useful.

ANNUAL REPORTS

THE KING INSTITUTE OF PREVENTIVE MEDICINE

THE acting Director, Dr. Gibson submitted the report on the work of the King Institute, Madras, for the year 1909. The report is mainly taken up with the complete and elaborate investigation into the water supplies of Madras which we have already commented upon several months ago. Much work is still required before any authoritative conclusions about the classification of germs found in drinking water can be formulated and it is hoped that this work will be continued. We quote the following extracts from Captain W. S. Patton's protozoological investigations.

'Since my return to the Institute in August 1909 I have devoted all my spare time to the investigation of the pathogenic and non-pathogenic protozoa found in South India. Although the work has progressed satisfactorily, many interesting and important facts having already been ascertained, I am not in a position to record the results in any great detail.

A long series of accurate observations has been started on the bovine piroplasmata of South India. So far two species of these parasites have been encountered: *Piroplasma bigemum*, and a species of *Theileria* allied to *Theileria mutans* and *Theileria annulatum*. Captain Christophers, I.M.S., noted the occurrence of these two parasites in 1905. As far as I am aware they have not been seriously studied in India, and up to the present time it is not known by what species of ticks they are transmitted. *Piroplasma bigemum* is recognised by all observers to be highly pathogenic, and the observations made here so far fully confirm this view. 8 calves which contracted the disease died in from five to ten days. It is therefore of considerable economic importance to ascertain to what extent it is responsible for the mortality among cattle in South India.

Some 3,000 calves annually pass through the Vaccine Section, and as these young animals are highly susceptible, it is possible to ascertain what percentage have acquired the disease, escaped and thus become immune. In order to ascertain this percentage a routine examination of the blood of all the calves, a few hours after they are brought to the Institute, was begun in August 1909 and up to the 31st of January 1910, 1,477 calves have been examined. One hundred and forty three of these or 9.6 per cent were found to be harbouring *Piroplasma bigemum* in small numbers in their blood. This percentage then represents those calves which have contracted the disease and which have recovered and become immune. It is very probable that at least 95 per cent of the animals attacked by *Piroplasma bigemum* die, so that it would not be far wrong to say that about 65 per cent of all calves born die, under one year old, of this disease. This must represent a great loss to the ryot, and as far as I am aware no account is taken of it, as it is not even mentioned as being one of the causes of mortality among the cattle of South India.

Four species of ticks are found on the calves *Hyalomma aegyptium* in its nymphal and adult stages, a species of *Haemaphysalis* *Rhipicephalus* sp. and *Amblyomma*, sp. in all their stages. I have been able to show that the species of *Rhipicephalus* completes its life history on one animal and thus according to some would be placed in the genus *Boophilus*, this tick transmits *Piroplasma bigemum* in its larval stage, that is to say, larvae descended from an infected parent are infective. This form of bovine piroplasmiasis is therefore preventable and further, as Nuttall and Halden have proved, it can be cured by trypanblau (Parasitology, Vol. II, page 156).

One thousand and fifteen calves or 68.7 per cent have been found to contain a species of *Theileria* in their blood, this parasite though closely allied to the highly pathogenic *Theileria parva*, the causative agent of African East Coast Fever, does not appear to be pathogenic. I am unable at present to say by what tick it is transmitted.

Canine piroplasmiasis—Last December the hounds of the Madras Hunt became ill and the Hon'ble Mr. Hoare, I.C.S. Hunt Master, applied to the Institute in order to ascertain the nature of their disease. The examination of the blood of the sick animals has resulted in the discovery of a new pathogenic piroplasm of considerable interest. It was conjectured that the hounds probably acquired the parasite from the familiar jackal (*Canis aureus*) which is regularly hunted in the suburbs of Madras. I was fortunate in being able to shoot a jackal in broad daylight, and in its blood the identical piroplasm which was first found in the blood of the sick hounds was at once discovered. The blood of this jackal was inoculated into three bazar dogs two of which had had a recent attack of *Piroplasma canis*. The three dogs showed this new piroplasm in their blood after an incubation period of 15 to 16 days. A number of other dogs were inoculated with the blood of a hound and four of these have also become infected, one of which died of the disease after 23 days.

The parasite is commonly seen in the blood of an infected dog as a small ring either with a large single mass of chromatin or two masses, one of which is much smaller. It may pyriform or oval in shape and some forms are seen to be amoeboid. It is about half the size of *Piroplasma canis* and its protoplasm is much less voluminous, the typical double pear-shaped bodies so characteristic of the common piroplasm of the dog are rarely seen. The disease is much more chronic, slow in onset, causes extreme anaemia, enlargement of the spleen and liver and great emaciation. In bazar dogs fever is not a marked accompaniment but in the hounds the temperature frequently rose to 106° F. Trypanblau has no effect on this parasite.

For this new piroplasm of the jackal I propose the name *Piroplasma Gibsoni* in honour of Dr. Gibson who first saw it. The complete description of it and the disease it produces will be published in due course.

A few of the hounds were also found to be infected with a trypanosome probably *Trypanosome Evansi*. This organism is also being studied in dogs and its method of transmission will, it is hoped, be found in time. A new *Haemogregarine* has been found in the blood of the jackal its asexual multiplication was found to take place in the spleen as well as in the bone marrow.

In a smear from the spleen of a dog which died of fits in the Suddipet Veterinary Hospital, a species of coccidium was discovered. The occurrence of the parasite in the spleen is unusual as up till the present *Coccidium bigemum* is only known from the intestine of the dog (Raillet and Lucet). Two new species of *Theileria* have been found, one in the blood of the Indian mongoose (*Herpestes mungo*), and the other in the blood of the spotted deer (*Cervus axis*).

Insect Flagellates—The study of these flagellates is being continued and at present *Herpetomonas muscae domesticae* in the alimentary tract of *Musca nebulosa* is engaging my attention.

Till recently the only method available for studying these parasites was by examining those insects that were already infected and therefore it was impossible to say what particular stage of their life cycle the parasites were in at the time of the examination. By this method the life histories of the parasites cannot be completely studied, nor can the exact way infection is acquired be ascertained. I have been able to overcome these difficulties by breeding *Musca nebulosa*, and then finding out how it becomes infected in nature. A number of experiments were carried out with bled flies by allowing them to feed on meat on which bazar flies had already fed, and it was found that they ingested the flagellated forms of *Herpetomonas muscae domesticae*. Further by keeping hatched flies in suitable cages it has been possible to follow on each successive day the changes the parasites undergo. These experiments have opened up an entirely new field of research which has many practical bearings. It will I have little doubt, throw much light on those flagellates which are known to occur in blood sucking insects. At present no serious attempt has been made by any observer to find out how blood sucking insects acquire these flagellates and consequently much confusion has arisen as to their true nature. I hope later to be able to carry out some experiments with a species of stomoxys, which is infected with *Herpetomonas* and also with *Tabanus striatus* which is infected with *Cithadus tabani* (Patton).

A preliminary paper recording the results already obtained in the case of *Herpetomonas muscae domesticae* will shortly be published, and at some later date a complete account will be given of the life history of this important flagellate. It is hoped in time to describe some twelve to sixteen flagellates from various insects in exactly the same way, all the descriptions being based on the study of insects experimentally infected.

The breeding habits of many of the common diptera have of necessity been closely studied and at the same time accurately identified specimens are being collected, and in this latter work much help has been given by Mr. Austin of the British Museum.

VACCINATION REPORTS, EASTERN BENGAL AND ASSAM (1909 10)

THE vaccination report for the year ending 31st March 1910 was submitted by Major S. Browning Smith, the Officiating Sanitary Commissioner E. B. and S. There were 1161 vaccinators, 292 paid and 872 licensed. There were nearly 1½ million persons vaccinated during the year, an increase over the numbers for the former year. There were 22,289 deaths reported from smallpox, there having been sharp outbreaks in six districts. Mersles in Nowgong was probably confused with smallpox in some cases. The departmental vaccinations obtained 96.2 per cent success in primary case and 76 in re-vaccination cases. This in our opinion shows the great necessity for compulsory vaccination. The excellent glycerinated lymph made in the Depot at Shillong was only used. The cost of the depot was 21,651 rupees. The number of tubes loaded was no less than 2,145,024, a very great increase on the figures of the previous year. The cost per tube works out at only 21 pies per tube. Vaccine was taken from 757 calves. It appears that some vaccine made in August did not give as good results as that made at other times of the year. No mention is made of cold storage of vaccine for emergencies. We understand that this has been so successful in Calcutta that a full six months supply can be kept ready for any outbreak.

VACCINATION IN THE PUNJAB (1909 10)

THIS report is submitted by Major E. Wilkinson, I.M.S., now Sanitary Commissioner, Punjab, the strength of the vaccination establishment was 5 Inspectors, 30 Superintendents and 265 Vaccinators. The Superintendents have been placed under the control of the local authorities. The average cost per successful case was 3 annas 3 pies. The total number of vaccinations performed amounts to 670,536, secondary operations done in case of failure in the same persons are included for the number of persons vaccinated.

A system of house to house vaccination was tried and 46,432 vaccinations were so done. The system is reported as not successful for reasons not altogether satisfactory, and we are glad to see the Local Government proposes to continue this plan which has several obvious advantages. The success of primary vaccination was 97.6 and of re-vaccination 75 per cent.

The following note on the results of the use of the cholera formed glycerinated lymph are of interest—

"During the year under report 19,557 tubes of vaccine were issued from the Punjab Vaccine Institute as compared with 19,095 in the previous year, and from the returns received it appears that 639,263 primary and 141,018 re-vaccination operations were performed, with an average case success of 96 per cent and an insertion success of 95 per cent in primary operations and a case success of 72 per cent and insertion success of 68 per cent in re-vaccination as compared with 97 and 96 per cent in the former and 77 and 73 per cent in the latter in 1908 09. The slight decrease in success as compared with last year's rates is due to some vaccinations performed in October and early in November 1909 as also to delay in the use of vaccine in hot weather which will be avoided as far as possible in future."

MEDICAL REPORTS, RAJPUTANA (1908 09)

THIS belated report only reached our table in July 1910. The medical portion was written by Lt Col V. Harrington, I.M.S., in June 1909.

The falling off in the number of persons vaccinated is attributed to the prevalence of malaria after the rains in 1908. In most of the Native States the arm to arm method is still in vogue, but in some states gold glycerinated lymph was obtained from Lahore, and in some states buffalo lymph is used with success.

There were 172 hospitals open in Rajputana and over 1½ million patients attended. The percentage of cases of malarial fever attending the dispensaries rose from 17 to 27 per cent. We note that 2,066 tuberculosis patients were treated. Plague decreased but this decrease is wisely not attributed to prophylactic measures. As regards surgery there were 65,204 operations performed, of which 1,277 were for cataract, and 55 lithotomies, 143 litholapaxies.

The Report also includes the Jail Reports of Rajputana, the health of which was generally good.

PLAGUE REPORT, UNITED PROVINCES

A special report is published by Colonel Manifold, I.M.S., the Inspector General of Civil Hospitals United Provinces, for the year ending with June 1910. The two previous years had seen a comparative lull in the violence of plague, but the year July 1909 to June 1910 saw a severe recrudescence, all the more disappointing in that the disease had been "practically extinct during the months of July to November 1908." The deaths in 1907 1908 had been 22,385 and in

1908 1909 only 13,814, but in the year under report they rose to no less than 141,357. So low were the figures of 1906 (July) that Government directed the discontinuance of all special expenditure on plague measures, which is another example which shows that a lull or even a decided drop in mortality gives us no grounds for hope that the disease has begun to permanently decline. In the year under report the plague was most severe in the four months, August to November.

The lowest mortality being in June 1910.

The largest number of deaths occurred in the following districts—Ballia, Azamgarh, Gorakhpur, Unao, Ghazipur and Cawnpore. Colonel Manifold quotes as follows from a report by Mr. Ingram, the District Magistrate of Azamgarh—

"I now come to certain definite conclusions which a study of the plague during the last two years leads me to arrive at. One is that it probably does go on during periods of quiescence. This year reporting his all but ceased since early in May. The system of reporting was much improved in the beginning of 1909 and the dismissal of a few privatises and chukkidars brought the fact home. In spite of this I have myself discovered two or three unreported cases this year. Chukkidars dislike reporting intensely because it means walking to the thana every day. To secure better reporting of cholera they have lately been permitted to send their daily reports by others. When the epidemic is over and deaths of rats in a few cases suddenly occur the chaukidar runs little risk in saying nothing about it. The matter is, I understand, of some importance and I myself always believed in total cessation before so I have laid stress on it. The second conclusion relates to the spread of the disease. It has long been remarkable that it affects this part of the country. The reason is that the inhabited sites are sufficiently close together for infection to be carried by rats themselves. The district itself gives evidence of this. The large rice lands in the south divide the inhabited areas by large swamps and plains. It is evident to look at them that nothing will cross them if it can help it. It was only in the very height of the epidemic that plague visited these areas and then its extension was slow. In 1908 9 only one rice village had it at all and in that it was clearly traced to human infection. In the *hab* areas of the centre and north the sites are often not a quarter of a mile apart, and I have no doubt that rats go freely from one to the other when flying from plague. Dead rats have in fact been found which must have come in that way. The course taken by rats is generally from east to west, though this is not necessarily the case in a town which they will leave till it is infected throughout. In this way we have been very freely infected from Ballia, while the severe epidemics which have from time to time visited Shahganj have done us little harm and that again through clearly traced human infection."

"Plague began earliest and was worst where it had not been the year before or where it had been only just beginning when the season closed."

Inoculation, we are sorry to hear, has proved unpopular, in many places Colonel Manifold tells us that the people "voluntarily evacuated houses" but "have absolutely refused inoculation." Rat extermination is proving like mosquito extermination more difficult than some anticipated. In town it is necessary to kill more rats than there are human inhabitants, and says Col. Manifold, "rat extermination in large towns cities is impossible, as rats breed up to their food supply which is practically unlimited."

The following noted on an outbreak of plague in a community previously inoculated is of special interest.

On the 30th January G. A. F. Colonel Harris and Lieutenant Colonel Chrytor White, I.M.S., enquired personally into the cause of plague developed in certain persons after they had undergone inoculation in Khuriya village in the Azamgarh district. The village is one of many villages in the Kajah estate and plague cases had apparently occurred in the neighbouring villages during October to December, but when a death took place at Khuriya the civil surgeon was asked to arrange for inoculation. Major Selby, I.M.S., himself inoculated 83 persons on the 30th December and the district sanitary officer 233 persons on the 3rd January, making a total of 316 inoculations out of an approximate population of 370. The inhabitants of one part of the village (49 in number) absolutely refused to have anything to do with inoculation. Of the 316 who were inoculated 21 were attacked with plague with a mortality of 6, but amongst the 49 uninoculated there were 19 seizures and 12 deaths. Of the 83 persons inoculated by Major Selby four subsequently developed plague. None of these died. Of the 4

1 developed plague 6 days subsequent to inoculation

1	"	"	7	"	"
1	"	"	10	"	"
1	"	"	15	"	"

Of the 233 inoculated on the 3rd January by the district sanitary officer 18 are said to have developed plague and 6

died. The total was really 17 as one of the supposed cases was seen alive and well on the 30th. He not only did not get plague but the reaction following the inoculation was scarcely marked at all. Of the 17

1	reported ill	3 days after inoculation
1	"	" 4 "
2	"	" 5 "
2	"	" 6 "
2	"	" 7 "
3	"	" 8 "
1	"	" 9 "
2	"	" 10 "
1	"	" 12 "
1	"	" 23 "
1	"	" 25 "

17

Colonel Harris in his report states —

"Taking 5 days as the period which the most recent modern authorities accept as the incubation period of plague contracted in the ordinary way it is quite certain that in cases where the virus of an infection has been directly thrown into the blood stream (which is what must occur in the inoculation operation) that the latent period will be very much shortened, and judging from what occurs in cases where post mortem infection has occurred in plague the latent period is extremely short and is probably much less than five days and is more likely to be 24 to 48 hours. There are naturally no direct experiments bearing on this point, but I have no doubt at all that the period of infection of plague contracted by direct inoculation into the blood of living plague germs would be considerably less than 3 days. It would appear that in the present case inoculation failed to protect 21 people out of 316 or 6.64 per cent either owing to the fact that some of them were already infected with a stronger dose of plague poison than could be neutralized by the anti bodies in the plague preventive or else that for some unknown reason the prophylactic used had lost its potency or a third possibility is that in some cases a considerable portion of the prophylactic serum may have been squeezed out by the patients themselves. This being a not infrequent occurrence therefore these persons would retain in their bodies an insufficient quantity of serum to protect them."

On the other hand numerous examples of the great protective value of inoculation are given, and the following may be quoted as an example

"*Cantonpore district* - On the 1st and 4th January 21 persons of the family and relations of Munshi Kudiat Ullah in the Gwaltola bazar were inoculated. All remained healthy, but his eldest son, aged 24 years who refused to be inoculated, was attacked by plague on the 15th and died on the 17th. On the 23rd February an inspector of post offices and seven of his family at Kursiwan were inoculated. Only two others living in the same house were not inoculated. A month after one of these uninoculated contracted plague and died the others remaining unaffected. In December plague broke out in Mahwagoon village. The tahsildar induced the villagers to evacuate their houses but this was done too late and 15 deaths from plague continued 51 persons, mostly relations of the zamindar Kalka Singh were inoculated. These persons did not evacuate although rats continued to die in their houses for over a month. Only one inoculated girl was attacked on the 21st January but she recovered two days later. All the remaining inoculated persons remained healthy."

The report is of very general interest and should be studied by all concerned with the administration of plague.

Correspondence

THE CLAIMS OF PENOLOGY

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR —The claims of penology to be recognised as a science are daily becoming more insistent. Whether criminality is, in reality, an affection of the mind, as claimed by the deterministic fatalists of Italy or whether latent insanity and congenital disease are mere contingencies, is still debated. In the meantime students of penology and those engaged in penal administration are greatly handicapped by the want of a medium for the diffusion of knowledge and the interchange of ideas. Medical science is beginning to assert its claim to the management and treatment of criminals not because crime is (as held by some) a disease, but because almost every question relating to prisoners and prisoners has a medical aspect and, further, because the tendency nowadays is to study and treat the criminal than to punish the crime.

In India more than anywhere else, penology enters into the daily lives of medical men, the majority of whom, undoubtedly, desire to know something of what is happening in these matters. Literature there is in such abundance, but for the most part, it is buried in blue books and reports accessible only to the few.

May I then plead for the recognition of this unclassified sister. That she may find a corner for herself in your esteemed journal in the form of supplement or page

I am, etc.,
JOHN MULVANY,
MAJOR, I M S

SOUTH SEA

[Will Major Mulvany begin?—ED, I M G]

SANDFLY FEVER

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—My thanks are due to Lieutenant Stott and Major Rogers for their criticisms of my paper published in the "Gazette" for August last.

Since its publication, Lieutenant-Colonel Butler A.M.C., has very kindly sent me reprints of his recent articles in the *Journal of the R. A. M. C.* on "Phlebotomus Fever in Malta and Ciete" and "Sandfly Fever in India."

His clinical description of the fever as met with in Malta corresponds in every particular with that described by me as seen in Nowshera, and he has clearly demonstrated that similar symptoms can be induced in healthy subjects, by the subcutaneous injection of the blood, either unfiltered or filtered, of patients suffering from this fever, and by feeding experiment with Phlebotomus.

Personally I have now very little doubt that epidemic fevers in the Punjab such as I described are in reality Sandfly Fever.

Dr. Annandale of the Indian Museum, has informed me that he has identified as "Phlebotomus Papatasi" specimens of Sandflies sent to him from Raval Pindi, Chitral and other stations in Northern India.

Another species, which he has named "Phlebotomus Bibu," he has found frequent in specimens sent to him from widely scattered stations in the plains of India.

He has kindly identified both species for me amongst Sandflies I sent him from Quetta where I am now stationed.

With regard to the duration of the pyrexial attack in my series of cases I would point out that, although as I stated it was difficult to calculate the exact duration in all cases, yet I met with numerous men who were perfectly well on the days previous to admission, and yet whose fever only lasted 3 or 4 days. The fact that it was the drill season coupled with the extreme severity of the initial symptoms precluded men remaining sick in the lines, for at any rate longer than one day or from carrying out their duties after the disease had set in.

The main diagnostic points I would accumulate in cases of this fever are its epidemic character amongst Europeans and natives alike, its sudden acute onset, the flushed swollen face with suffused conjunctivae and general heavy drunken appearance, the very severe pruritis in the eye balls, loins and thighs, vomiting, and relative slowness of pulse.

The return symptoms above enumerated seem equally characteristic of the '7 day fever of Calcutta' as described by Rogers, but this latter fever seems always to occur sporadically and to affect Europeans far more frequently than natives.

Dengue I have never seen but its characteristics of comparatively brief initial fever, relapses and rheumatic affections of joints, with slow convalescence, would seem to differentiate it from other forms of short fevers.

QUETTA,
30th October 1910

Yours, etc.,
C N C WIMBERLEY,
LT COLONEL, I M S

THE 23 BOMBAY CASES OF EXTRACTION OF CATARACT IN CAPSULE

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR —My reply to Major Kilkelly's paper in the July and November numbers of the *Indian Medical Gazette* was merely tentative until I could get some facts. I had none, and even now he refuses to let me see the entries made by me at the time of operation on the bed-headed tickets of those patients. I had thus to wait confident as I was that there was something wrong in the "State of Denmark" as regards these cases I was equally confident that time would bring to light some facts concerning them. That there should be more complications in those 23 cases than I have on the average in over 200 cases seemed to me queer. I, thus, in my original reply avoided touching any of his facts but took them in bulk for the time being.

With regard to the two men to whom he refers—Dr Bentley and Dr Pontius—I am in a position to say, that Dr Bentley called at his Hospital, that a few cases, not 23, were paraded for him that he had a casual look at them, not a critical examination, that he is indignant at his name being used by Major Kilkelly in connection with them, and that the conclusion he came to was, that I was foolhardy in operating on those cases in that hospital. Dr Bentley had arranged with me a considerable time before his visit to India for a course of instruction. Dr Pontius accompanied Dr Bentley as a 'globe trotter.' He made no arrangement with me beyond asking a few days prior to coming if he might come. I had thus, Dr Jamison of Belfast and Dr Bentley by special arrangement to do all I could for. Hence Dr Pontius got no extraneous operating to do. To have given him any would have been unfair to the other two men. He had an opportunity to see every thing and to examine any cases he wished to examine. Nothing was concealed from him. He let us know one evening that he was leaving by the next train a couple of hours later. He very plainly felt aggrieved that I was devoting so much attention and giving so many facilities as regards operating to Drs Bentley and Jamison and none to him. When he arrived in Bombay he appears to have met in Major Kilkelly's Hospital a congenial atmosphere. Dr Pontius's figures hereinafter mentioned are extracted from *North West Medicine* published at Seattle, U S A, I think in May, which came out about the same time as Major Kilkelly's paper came out in the *Indian Medical Gazette* namely, fourteen months after they made their notes on those cases. When Major Kilkelly's original paper and his letter to the *Indian Medical Gazette* are taken together it will be seen that he was not disposed to look at these cases with rose coloured spectacles. We can thus fairly assume that the facts of these two allies are of equal value. I grant that the two men were competent and equally so to report on the facts on which they report.

Dr Pontius is not correct in saying that he saw 250 cases done by me in Jullundur. These cases were practically all done by Drs Bentley and Jamison under my supervision and instruction. If I had done them there would probably have been a little less incarceration of iris.

What does Dr Pontius mean when he says of the Jullundur cases which he examined (70 cases), evidence of having had iritis in many? He examined those cases six clear days after operation, namely, when they were first dressed after operation. What sort of iritis occurs between the day of operation and the seventh day and disappears without treatment? If Dr Pontius had done those 70 cases at Seattle which he examined at Jullundur and reported them would he have called a single case of them—iritis? It is evident that in what he saw at Jullundur he had nothing sinister to report or he would have done so. Why did he not go into details with the Jullundur cases as he did with the Bombay cases? From a scientific point of view it was much sounder ground as he saw them done and saw their history tickets written up at the time of operation. That the Bombay cases were done by me at all was to him only hearsay evidence.

With reference to the 23 Bombay cases we now come to the real argument to the facts which Major Kilkelly and his ally, Dr Pontius have been pleased to give us. We have no other facts and we have to examine them as a lawyer examines evidence on paper after it has been elicited. The actual number of cases was 23. Major Kilkelly reports on 23, Dr Pontius on 24. Major Kilkelly therefore paraded for Dr Pontius one case as mine which I did not do. How many more were paraded for Major Kilkelly and Dr Pontius which I did not do?

Major Kilkelly finds vitreous opacities in many. Dr Pontius does not find vitreous opacities in any. Major Kilkelly does not find the corneal wound incompletely healed in any (three weeks after operation). Dr Pontius finds the corneal wound incompletely healed in six.

Major Kilkelly finds iris prolapsed in six. Dr Pontius finds iris prolapse in two.

Major Kilkelly finds incarceration of lens capsule in four. Dr Pontius in three.

I wanted to see my entries on the bed head tickets of these cases as I am confident that there was capsule left behind in but one of them but on recently applying to Major Kilkelly for the loan of them he declined saying that he 'does not see what purpose it would serve' to let me see them.

Major Kilkelly finds opaque pupillary membrane in two. Dr Pontius in six.

Major Kilkelly finds evidence of having had iritis in seven. Dr Pontius in nine.

Major Kilkelly finds ciliary infection in three. Dr Pontius in six.

The above are all gross lesions which could be seen as plainly as one man could see another on the road. There is no room for opinions about them. I admit that each of these two men saw what he reported on. One of them saw 23 cases, the other saw 24, one too many. When the above facts are carefully compared I think it is evident that these two allies

did not examine the same cases, otherwise why these gross discrepancies? Who operated on one of the 24 cases paraded for Dr Pontius? That none of these cases should have had vision above 6/15 (Major Kilkelly) is ludicrous. A number of them should have had an approach to that without spectacles.

Why does Major Kilkelly refuse to let me see my entries on the bed head tickets? Are the accidents at the time of operation reported by him grossly exaggerated? I think they are. At this juncture he does not see 'what purpose it would serve' to let me see them. My original and my present presumption is that the scum of the Bombay Hospital was paraded for these two men to examine and report on.

I now leave the verdict on the whole case to the judgment of fair minded men.

Yours etc,
HENRY SMITH,
LT COLONEL, M D I M S

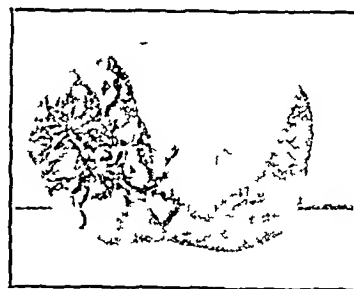
RUPTURE OF KIDNEY

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR—I am sending some notes of an unusual accident which was admitted to this hospital in December last, and which will, I think, interest your readers on account of its rarity.

A healthy Hindu man, aged 25 in the employ of the Madras Railway, was run over by a hand trolley on December 16th, 1909, the wheels passing over his abdomen about half way between the umbilicus and the ensiform cutilage.

On admission he was found to have a superficial contused wound over the second and third lumbar vertebrae. Five and a half hours after the accident he appeared to be in a condition of great distress complaining of severe pain and great tenderness over the epigastric region, and presenting all the signs of severe shock, his pulse being 96 soft and weak, and his extremities cold. The whole abdomen was hyper resonant and the liver dullness was diminished by two fingers' breadth. The splenic dullness remained normal, and the right flank was somewhat more dull than the left. The upper part of the abdomen was very tender and the muscles in this region were rigid, the lower part of the abdominal wall being soft but also somewhat tender on palpation. Vomiting occurred once shortly after admission. A diagnosis of rupture of the jejunum at its commencement was made, and immediate operation was decided upon.



Assisted by Captain A C Ingram, M D, I M S, a free incision was made into the abdomen just to the left of the umbilicus. The peritoneal cavity was found most unexpectedly to be full of bloody fluid, although there had been no physical signs to suggest such a condition. The intestines and spleen were normal, but an irregular mass was found lying loose behind the stomach and below the left lobe of the liver. At first this mass was thought to be a torn off portion of the liver, but on enlarging the wound and pulling the mass downwards it was found to be a kidney, from the surface of which at one end a considerable flat piece had been torn off, leaving an irregular torn surface which was bleeding freely. The pedicle of the kidney was tied close to the kidney and the kidney removed. Search was not made for the torn off piece of the kidney as the condition of the patient appeared to be desperate. The abdomen was sutured as rapidly as possible and he was sent back to bed.

For some days there was troublesome vomiting and some separation of the abdominal wound necessitated a plastic operation a fortnight later. In all other respects his progress was uneventful.

A photograph of the kidney is attached herewith.

Yours etc,
R B B FOSTER,
Captain, I M S

Note by Captain A C Ingram, M D, I M S—

The kidney, which was freely movable within the abdomen was attached by a short pedicle composed of the renal vessels only the ureter having been torn across at the hilum. At first I thought that it was a floating kidney, but on further examination I found that the capsule had been completely stripped off the kidney so that it appears probable that at the accident the peritoneum and capsule of the kidney were split and the greater part of the kidney dislocated out of the capsule leaving a small portion of the lower end of the kidney with the ureter adhering to the capsule on the posterior abdominal wall. The blood stained fluid in the abdomen must have been a mixture of urine and blood, and the vomiting after the operation was probably due to a certain amount of peritonitis set up by this somewhat irritating mixture.

PLAGUE PROBLEMS

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—With all deference to the finding of the Royal Commission on Plague in India I shall feel much obliged if you can insert the following queries in your journal as the answers to the same will materially affect the modes of infection of plague, and will open up a new field for enquiry.

(I) Why does not plague infect the Telugana villages? i.e., where wet cultivation exists and the staple food of the people is rice or boiled pulse. (This has been very noticeable in the epidemics of Hyderabad Decan, hence the enquiry)

(II) Why does not a suckling infant at the breast get plague?

I remain
Yours faithfully,
EDNOR HILLIER, L M S.,
Supdt. of Dispensaries,
Nizam's Service

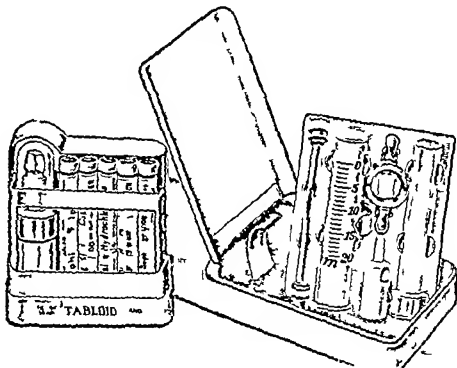
THERAPEUTIC NOTICES

MESSRS BURROUGHS WELLCOME & Co have obtained what is believed to be a record number of distinctions in an exhibition of international character. The products of this firm have been awarded eight grand prizes, three diplomas of honour and one gold medal at the Brussels International Exhibition.

Five grand prizes and one gold medal have also been awarded to the firm at the Japan British Exhibition, London, 1910.

The well known firm of BATTLE & CO of St. Louis, M O, U S A inform us that their Laboratories and Offices have been transferred from Paris to London and their new address is now BATTLE & CO Wilfrid Street, Buckingham Gate, London S W.

The awards recently conferred at the Brussels International Exhibition upon Messrs MELLIN LTD the proprietors of the world famous Food for Infants and of a number of other dietetic specialties certainly provide this well known firm with ample cause for self congratulation. There is, we learn, a Gold Medal for Mellin's Food and Lacto another Gold Medal for Mellin's Food Biscuits, still another for Mellin's Food Chocolate and a Diploma of Honour for Mellin's scientifically designed Feeding Bottle for Infants. Indeed as a matter of fact, Messrs Mellin secured a prize in every class for which their specialties were entered. A Diploma of Honour and Three Gold Medals for one British Firm at one Exhibition!—Let us add our congratulations to the many Messrs Mellin must already have received.



MESSRS E LEITZ of 9 Oxford Street, W, London, send us a useful pamphlet entitled "Some hints on the use of the Stading Microtome". It will be found of great use in all Laboratories.

MESSRS NEWTON, CHAMBERS & CO, LTD, of Thorncliffe, near Sheffield, have been awarded a Grand Prix by the judges at the Japan British Exhibition for their disinfectant fluid IZAL. Although premier honours have been awarded to IZAL on many former occasions, this latest recognition bears fresh witness to the reliability and excellence of this well known disinfectant preparation. IZAL is offered for many purposes sanitary, surgical, horticultural, and veterinary, and much useful work in connection with the scientific use of disinfectants has been done in the laboratories at Thorncliffe.

We have received one of Messrs Burroughs Wellcome & Co's No 20 aseptic HYPODERMIC SYRINGE which contains two steel needles in protective tube, a small glass stoppered phial for ether or for distilled water and ten "tabloid" tubes. It is an excellent instrument and the parts are so well adjusted that no lubricant is needed.

Service Notes

LIEUTENANT COLONEL WALTER CONRY Bengal Medical Service, retired died at Caversham on 15th July 1910. He was born on 22nd April 1849, educated at the Combe Hospital and Trinity College Dublin where he took the degrees of M B in 1871, after gaining the diplomas of L R C S, Ed, and L R O P Ed in 1875. He entered the I M S as Surgeon on 31st March 1877 becoming Surgeon Major on 31st March 1889 and Surgeon Lt Colonel on 31st March 1897 and retiring on 28th November 1898. He served in Burma in 1885-87, receiving the medal with clasp.

DEPUTY SURGEON GENERAL JOHN LISTON PAUL Madras Medical Service retired died at Torquay on 25th August 1910. He was born at Elgin on 12th February 1827 educated at Kings College Aberdeen where he took the M A in 1845 and at Edinburgh where he took the M D and the L R C S, Ed, in 1848, and subsequently studied at Paris. He entered the I M S as Assistant Surgeon on 20th January 1850 became Surgeon on 15th June 1864, Surgeon Major on 20th January 1870, and retired, with the honorary rank of D S G, on 11th November 1876. Prior to his retirement he had held for some years the post of Professor of Surgery in the Madras Medical College, and after retirement practiced for many years in London, officiating on one occasion as President of the Medical Board, India Office, during the absence of Sir Joseph Fayrer. The Army Lists assign him no war service. Dr Paul was a grandson of Liston, the celebrated Surgeon, from whom he took his second name, one of his brothers Lieutenant W Paul, of the Bengal Army, was killed in the relief of Lucknow.

LIEUTENANT COLONEL JOHN PETER HAMILTON BOILEAU, R A M C retired died of peritonitis at Trowbridge on 4th March 1910. He was educated at Trinity College Dublin and at the Ledwich School of Medicine, and took the degrees of B A in 1863 M B in 1864 M D in 1873 D P H in 1874 and M A in 1897 at Trinity College, also the diplomas of L R C S I in 1863 and F R C S I in 1874. Entering the Army Medical Department as Assistant Surgeon on 30th September 1884 he became Surgeon on 1st July 1873 Surgeon Major on 30th September 1876, retiring on 9th April 1896. The Army Lists assign him no war service. In his early career he served in the West Indies. From 1876 to 1883 he held the post of Assistant to the Professor of Pathology, (Dr Aitken) at the Army Medical School at Netley, the older members of the services will still remember his genial temper and pleasant manners to them, while under his instruction. On leaving Netley he came to India, and was posted to Allahabad. Subsequently from 1890 to 1895, he commanded the Station Hospital at Meerut. After his retirement he was in medical charge of troops at Trowbridge 15 years 1896 to 1906. Colonel Boileau was a Fellow of the Statistical Society, and an enthusiastic member of the British Medical Association, being a member of the Central Council of the Association in London from 1881 to 1883, and after he came to India in the latter year Secretary of the long defunct North West Province and Oudh Branch. He was the author of many papers in the Medical Journals and of a very interesting pamphlet compiled about 1883 on the prospects of promotion in his own department.

THE attention of Medical Officers is drawn to the following letter from Government of India (Home Department).

The Government of India are informed that officers of the Indian Medical Service and the Indian Subordinate Medical Department in civil employ are not always aware what books of military regulations they ought to possess, and how they ought to dispose of the books when they leave the civil department. I am therefore, to request that, on their admission to the civil department, all such officers and

subordinates may be provided, in future, at the expense of the State, with copies of the books,* noted at foot, and that military assistant surgeons may also be supplied with copies of Army Regulations India, Volume VI. These books should be surrendered to the head of the Provincial Medical Department when the officers and subordinates, to whom they are supplied, revert to military duty or retire from the service. I am to request that, with the permission of the Lieutenant Governor, orders may be issued with a view to give effect to this decision.

The following letter of Government of India is of considerable importance —

I am directed to refer to the Home Department letter No 615, dated the 29th March 1910, communicating a ruling by the Finance Department that an officer of the Indian Medical Service who proceeds to Kasauli for a course of training in clinical bacteriology and technique is entitled to any local allowance drawn by him immediately before he proceeded to Kasauli without prejudice to the claim to such allowance of the officer acting for him. I am to say that in future no officers drawing allowances from local funds should be allowed to go to Kasauli for bacteriological training unless they are prepared to forego those allowances or unless the local fund authorities agree to pay the allowances both to the officers permitted to go to Kasauli and to the officers appointed to act for them.

MAJOR M DICK, I M S, Civil Surgeon, Burma, is appointed to officiate in the first class, with effect from 31st July 1910.

THE services of Assistant Surgeon Sheikh Muhammed Hussain Khan Bahadur His Majesty's Vice Consul at Jeddah, are replaced at the disposal of the Government of Bengal with effect from the date of his return from the leave granted to him in the notification by the Government of India in the Foreign Department, No 1716 Est A, dated the 24th May 1909.

FIRST CLASS Military Assistant Surgeon R H W Hart, whose services have been placed at the disposal of the Central Provinces by the Director General Indian Medical Service is posted to the medical charge of the Ellichpur Sub Division of the Amravati District *vice* 2nd Class Military Assistant, Surgeon H O Bizely, deceased.

THE special leave of Captain N S Wells I M S, Civil Surgeon, U P is commuted to furlough on medical certificate and extended by six months.

THE services of Captain W J Collinson, I M S, on plague duty in the Punjab, are replaced at the disposal of the Government of India in the Home Department with effect from the date on which he returns from leave.

THE services of Captain C L Dunn I M S Assistant Plague Medical Officer Jullundur, are placed at the disposal of the Government of the United Provinces of Agra and Oudh, with effect from the date on which he may relinquish charge of his present duties.

RAI SAHIB LACHMAN DAS, Senior Assistant Surgeon, is confirmed as Civil Surgeon, on the Provincial Establishment, with effect from the 18th of June 1910, *vice* Rai Bahadur Thakur Das, retired.

LIEUTENANT COLONEL ASHTON STRETT F R C S, I M S, has been granted by the Secretary of State six months' extension of furlough (m c).

CAPTAIN W L HARNETT I M S, has been appointed 'Specialist in Prevention of Disease' for the Brigade Laboratory, Jubbulpur.

THE Commander in Chief in India is pleased to make the following appointments —

Brigade Staff — Colonel F C Reeves, I M S to be Principal Medical Officer Secunderabad Brigade *vice* Colonel H St C Cruithers I M S, transferred to the Civil Department.

HIS Excellency the Governor of Bombay in Council is pleased to appoint Captain A W Tuks, F R C S I M S, to be a Civil Surgeon of the Second Class and to continue to do duty as Acting Resident Surgeon, St George's Hospital.

MAJOR B DEARF, I M S, M R C P is to be next Civil Surgeon of Dujeeing *vice* Major R Maddox, I M S, going on furlough.

A MEDAL inscribed "for Meritorious Service" with annuity, has been granted to the following —

First class Hospital Assistant Kishen Chand Bengal Establishment, *vice* No 602 1st class Hospital Assistant Moham med Kasim Bengal Establishment, promoted, with effect from the 1st February 1910.

First class Hospital Assistant Nain Singh, Bengal Establishment, *vice* No 627 1st class Hospital Assistant Ram Lal, Bengal Establishment, deceased with effect from the 23rd April 1910.

First class Hospital Assistant Pandit Nathu Ram, Bengal Establishment, *vice* No 624 1st class Hospital Assistant Niranjani Das Bengal Establishment, promoted, with effect from the 5th June 1910.

LIEUTENANT COLONEL R ROBERTSON, I M S, was due out in Madras on 22nd November.

MAJOR P C GABBETT I M S, went on two years' combined leave on 27th August 1910.

MAJOR E M ILLINGTON, I M S is due from furlough on 14th February 1911.

MAJOR T E WATSON, is due from 2 years' furlough on 2nd December 1911.

CAPTAIN M N CHAUDHURI, I M S, is due from leave in India on 15th May next.

THE leave of Captain W A Justice, I M S, expired on 17th October 1910.

WE regret to learn that Lieutenant Colonel Henry Smith, M D, I M S, of Amritsar has had early in November to go to Kasauli for treatment of a bite by a rabid dog.

CAPTAIN J P CAMFRON I M S has got 18 months' leave and is not due out till 27th February 1912.

CAPTAIN F W CRAGG, I M S, is due out in February 1911.

MAJOR B J SINCH, I M S, was granted one month's privilege leave from 20th October.

MILITARY ASSISTANT SURGEON T B BUTCHER is placed on special duty at the Allahabad Exhibition.

MILITARY ASSISTANT SURGEON N S HARVEY is posted as Civil Surgeon, Unao, U P.

CAPTAIN H A DOUGAN, I M S, going on leave made over to Captain L P Brassey I M S, the collateral charge of the Civil Surgeoncy of Meiktila.

CAPTAIN R A CHAMBERS I M S, Superintendent of the District and Female Jails, Lahore, made over charge of his duties to Major E L Waid, I M S, on the afternoon of the 3rd September 1910 and proceeded to the Central Research Institute, Kasauli, for training in clinical bacteriology and technique.

ON transfer from Amritsar Captain A F Babonau, I M S, relinquished charge of his duties as Assistant Plague Medical Officer on the forenoon of the 24th August 1910 and assumed charge of the office of District Plague Medical Officer, Ferozepore, on the forenoon of the 25th idem, relieving Lala Har Narain.

CAPTAIN H WATTS I M S District Plague Medical Officer Hoshiarpur is granted privilege leave for 1 month and 12 days, combined with furlough on medical certificate out of India for 10 months and 16 days and 1 article 260 233 and 302 (a) of the Civil Service Regulations with effect from the 21st of September 1910 on the subsequent date from which he may avail himself of it.

ON relief by Captain H A Williams, I M S Captain R Kelsall, I M S is posted to the civil medical charge of the Thayetmyo District in place of Captain R D MacGregor, I M S, posted on special duty.

This Department Notification No 287, dated the 13th September 1910, so far as it relates to the transfer of Captain Kelsall to Magwe, is hereby cancelled.

* (1) Field Service Regulations, India
(2) Field Service Manual, Medical

On return from leave Captain W E McKechnie, I M S, was posted to Etawah as Civil Surgeon

His Excellency the Governor of Bombay in Council is pleased to direct that Lieutenant-Colonel L F Childe M B, I M S, on return to duty, should resume charge of the duties of Professor of Medicine and Clinical Medicine and Therapeutics Grant Medical College Bombay

His Excellency the Governor of Bombay in Council is pleased to appoint Major T S Novis, F R C S, I M S, on return to duty, to act as Professor of Anatomy and Curator of Museum Grant Medical College, *vice* Captain L P Stephen M B, I M S, pending further orders

His Excellency the Governor of Bombay in Council is pleased to make the following appointments —

Major A G Sargent I M S, on return from leave, to act as Civil Surgeon Belgaum

Major I H McDonald M B C M I M S, on relief to act as Presidency Surgeon Second District, with attached duties *vice* Lieutenant Colonel J Cummin V C, C I E M B, I M S, during the absence on leave of Major S H Burnett, M B, C M I M S, or pending further orders

His Excellency the Governor of Bombay in Council is pleased to direct that Lieutenant Colonel L F Childe M B, I M S, on return to duty should resume charge of his own appointment of First Physician J J Hospital and in addition to do duty as Senior Medical Officer J J Hospital

His Excellency the Governor of Bombay in Council is pleased to appoint Major T S Novis F R C S I M S, on return to duty to act as Second Surgeon J J Hospital and Presidency Surgeon First District, *vice* Captain L P Stephen, M B, D P H, I M S, pending further orders

His Excellency the Governor of Bombay in Council is pleased to appoint Captain C J Coppinger M B I M S, to act as Civil Surgeon Ahmednagar, in addition to his Military duties *vice* Captain W D Wright, M B, I M S, transferred

CAPTAIN H W ILLIUS I M S, Officiating Civil Surgeon Jhansi, was granted privilege leave for one month, with effect from the 14th October 1910, or the date of relief

CAPTAIN W H ODLUM, I M S, Medical Officer, 30th Lancers Jhansi was appointed to hold civil medical charge of Jhansi in addition to his military duty *vice* Captain Illius, granted leave

MILITARY ASSISTANT SURGEON G A RICHARDSON, His B M Vice Consul at Hodeidah was granted three months' privilege leave from 27th August 1910

MILITARY SUB ASSISTANT SURGEON ZAHIRUD DIN KHAN is specially promoted to 1st Class in recognition of his services at the Khorasan Agency Dispensary, Meshed

FURLOUGH on medical certificate for one year (from the 25th January to the 19th May 1910 in India and the remainder out of India) under paragraph 358 of the Army Regulations, India volume I, is granted to Captain D N Anderson, M B, I M S, Officiating Civil Surgeon, on general duty at Nagpur, with effect from the 25th January 1910

Order No 1126 dated the 11th May 1910, is hereby cancelled

PRIVILEGE leave for three months, in combination with furlough for nine months and twenty days and study leave for eight months under Articles 233 (a) 260 303 (a) and 308 (b) of the Civil Service Regulations and Rule 2 of the Study Leave Rules is granted to Captain J C S Oxley M R C S, L R C P I M S, Civil Surgeon Amroli, with effect from the 23rd October 1910, or the subsequent date on which he may avail himself of it

MAJOR W H KENRICK, D T M, I M S, Civil Surgeon, Nimar, is placed on special duty under the orders of the Sanitary Commissioner Central Provinces with effect from the date on which he assumes charge of his duties

On completion of his special duty in the Raipur Central Jail Captain W Tur M B, F R C S E, I M S, is appointed to officiate as Civil Surgeon Nimar during the absence on special duty of Major W H Kenrick, D T M, I M S, or until further orders

CAPTAIN J F JAMES, I M S, is appointed to be Civil Surgeon of Jalpaiguri

LIEUTENANT COLONEL F J DRURY M B, I M S, is deputed to attend the office of P M O at Lucknow and then probably takes long leave

LIEUTENANT COLONEL J T CALVERT, I M S M R C P, will act for Lieutenant Colonel Drury as Principal, Medical College, Calcutta

MILITARY ASSISTANT SURGEON G A HOWATSON officiates as Civil Surgeon, Almora

MAJOR H J R TWIGG, I M S, took over charge of Yeravda Central Prison, for Captain Lawson, I M S, on 30th September

LIEUTENANT COLONEL H P DIMMOCK M D (Dur) I M S is granted from the date of relief, such privilege leave of absence as may be due to him on that date in combination with furlough for such period as may bring the combined period of absence up to six months

His Excellency the Governor in Council is pleased to make the following appointments *vice* Lieutenant-Colonel H P Dimmock, M D (Dur), I M S, proceeding on leave, pending further orders —

Lieutenant Colonel C H L Meyer M D, B S (Lond) I M S to act as Senior Medical Officer J J Hospital, Bombay, and Principal, Grant Medical College

MAJOR S FIANS, M B, C M I M S, to act as Obstetric Physician, J J Hospital and in charge Bui Motilhai and Su D M Petit Hospitals in addition to his present duties, and Professor of Midwifery

THE Service of Captain A S M Peeble, M D, I M S, is replaced at the disposal of the Army Department

MAJOR W R BATTIE, I M S, Residency Surgeon in Mowat was granted one month's privilege leave from 16th September 1910

MAJOR J G MURRAY, M D (Edn), acts as Professor of Materia Medica Calcutta, *vice* Lieutenant Colonel Calvert, who acts as Principal

Notice

SCIENTIFIC Articles and Notes of interest to the Profession in India are solicited. Contributors of Original Articles will receive 25 Reprints gratis if requested

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to THE EDITOR, *The Indian Medical Gazette* c/o Messrs Thacker, Spink & Co Calcutta

Communications for the Publishers relating to Subscriptions, Advertisements and Reprints should be addressed to THE PUBLISHERS Messrs Thacker, Spink & Co, Calcutta

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BOOKS REPORTS &c RECEIVED —

Chomosh's Sewage Disposal in the Tropics Price Rs 10 (Thacker, Spink & Co)

Callwell's Military Hygiene Second Edition Price 12s 6d (Baillière, Tindall & Cox)

Lloyd's Biology for Students in India Price Rs 4 (Macmillan & Co)

Ray's Medical Jurisprudence Price Rs 2 (Hare Pharmacy Calcutta)

Carnegie Brown's Amoebic Dysentery (Bale Sons & Danielson Ltd)

Sexual Disabilities of Man A Copey Price, 5s (H K Lewis)

P Har's Organic Chemistry for Medical Students Price 2s 6d (Macmillan & Co)

S S Sprague's Medical Education Price 1s 6d (Baillière, Tindall & Cox)

Stewart's Physiology Sixth Edition Price 18s (Baillière Tindall & Cox)

Lumkin's Syphilis Price 5s (Baillière, Tindall & Cox)

Gancher's Diseases of the Skin (J Murray)

Indian Decapod Crustacea Alcock (Indian Museum)

Calcutta Health Report

Cotton's Joints and Dislocations (W B Saunders & Co)

Chupentier's Hemoglobinuria (H L Lewis)

LEIERS, COMMUNICATIONS &c, RECEIVED FROM —

1st Col P Rohit I M S, Jansdowne 1st Col H Smith I M S, Amritsar Asst Surgn Bouche, Alen Capt H Acton, I M S, 1st Col J R Adie I M S, Lahore Capt L P Stephen, I M S, Bombay Capt W Gellitt I M S, Buxar, Capt Green Armistage, I M S, Ran goon Capt Reynolds I M S, Saniwar Dr Muir Kalra Capt Tarr I M S, Jubbulpur Major Foulkes I M S, Walthair Capt McKechnie I M S, Etawah, Capt A D Stewart, I M S, Dr Roper, Assam

